SAMSUNG

COLOR TELEVISION RECEIVER

Chassis : SCT13B
Model: CK503ETR4S/NWT

SERVICE Manual

COLOR TELEVISION RECEIVER

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1. Precautions

Follow these safety, servicing and ESD precautions to prevent damage and protect against potential hazards such as electrical shock and X-rays.

1-1 Safety Precautions

1. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.

2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.

3. Make sure that there are no cabinet openings through which people—particularly children—might insert fingers and contact dangerous voltages. Such openings include the spacing between the picture tube and the cabinet mask, excessively wide cabinet ventilation slots, and improperly fitted back covers.

   If the measured resistance is less than 1.0 megohm or greater than 5.2 megohms, an abnormality exists that must be corrected before the unit is returned to the customer.

4. Leakage Current Hot Check (Figure 1-1):
   Warning: Do not use an isolation transformer during this test. Use a leakage-current tester or a metering system that complies with American National Standards Institute (ANIS C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

5. With the unit completely reassembled, plug the AC line cord directly into the power outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: antennas, handle brackets, metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

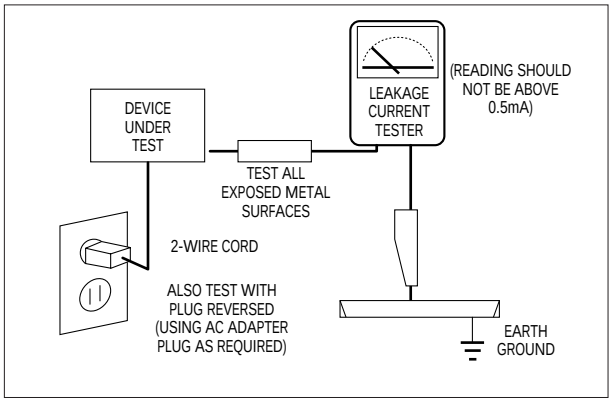

DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

6. Antenna Cold Check:
   With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs. Connect one lead of the ohmmeter to an AC prong. Connect the other lead to the coaxial connector.

7. X-ray Limits:
   The picture tube is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the picture tube only with one that is the same type as the original. Carefully reinstall the picture tube shields and mounting hardware; these also provide X-ray protection.

8. High Voltage Limits:
   High voltage must be measured each time servicing is done on the B+, horizontal deflection or high voltage circuits. Correct operation of the X-ray protection circuits must be reconfirmed whenever they are serviced. (X-ray protection circuits also may be called "horizontal disable" or "hold-down".)

   Heed the high voltage limits. These include the X–ray Protection Specifications Label, and the Product Safety and X-ray Warning Note on the service data schematic.

1-1 Safety Precautions (Continued)

9. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.

10. Design Alteration Warning:
Never alter or add to the mechanical or electrical design of this unit. Example: Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.

11. Hot Chassis Warning:
Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord. If an isolation transformer is not used, these units may be safely serviced only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC source.

    To confirm that the AC power plug is inserted correctly, do the following: Using an AC voltmeter, measure the voltage between the chassis and a known earth ground. If the reading is greater than 1.0V, remove the AC power plug, reverse its polarity and reinsert. Re-measure the voltage between the chassis and ground.

12. Some TV chassis are designed to operate with 85 volts AC between chassis and ground, regardless of the AC plug polarity. These units can be safely serviced only if an isolation transformer inserted between the receiver and the power source.

13. Some TV chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.

14. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards.

15. Observe the original lead dress, especially near the following areas: Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.

16. Picture Tube Implosion Warning:
The picture tube in this receiver employs "integral implosion" protection. To ensure continued implosion protection, make sure that the replacement picture tube is the same as the original.

17. Do not remove, install or handle the picture tube without first putting on shatterproof goggles equipped with side shields. Never handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; do not try to remove such "permanently attached" yokes from the picture tube.

18. Product Safety Notice:
Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original—even if the replacement is rated for higher voltage, wattage, etc.

    Components that are critical for safety are indicated in the circuit diagram by shading, (⚠) or (⚠).
    Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications.
    A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1-2 Servicing Precautions

Warning1: First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.
Warning2: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet. Follow them.

2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.

3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.

4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.

5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).

6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.

7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.

8. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Precautions for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor ("solid state") devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.

2. Immediately before handling any semicon ductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power—this is an electric shock precaution.)

3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.

4. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.

5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.

6. Use only an anti-static solder removal device. Many solder removal devices are not rated as "anti-static"; these can accumulate sufficient electrical charge to damage ESDs.

7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.

8. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

9. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

2. Specifications and IC Data

2-1 Specifications

Television System:

MODEL	SYSTEM
CI	PAL-I (UHF)
CII	PAL-I (VHF/UHF)
CX	PAL-B/G, SECAM-B/G
CK	PAL-B/G, D/K, SECAM-B/G, D/K
CW	PAL-B/G, D/K, SECAM-B/G, D/K, NT 4.43
CS	PAL-B/G, D/K, SECAM-B/G, D/K, NT4.43, NT3.58

Channels:

System / Band	PAL/SECAM-B/G,I	PAL, SECAM- D/K	SECAM-K1, PAL-D	NTSC - M
VHF	2 - 12	1 - 13	2 - 9	2 - 13
UHF	21 - 69	21 - 69	13 - 57	14-69

Intermediate Frequencies (MHz) :

SYSTEM / IF Carrier Frequency	PAL/ SECAM- B/G	PAL/SECAM-D/K, SECAM-K1	PAL - I	NTSC - M
Picture IF Carrier	38.90	38.90	38.90	38.90
Sound IF Carrier	33.40	32.40	32.90	34.40
Color Sub Carrier	34.47	34.47	34.47	35.32

Picture Tube:

14 Inch	A34KQV42X	Quick start, in-line-gun,
20 Inch	A48KRD82X	Black stripe, 90°degree deflection
21 Inch	A51KQJ63X	

Power Requirements: AC 100~260V, 50/60Hz

Antenna Input Impedance: VHF, UHF : Telescopic dipole antenna (75 ohm unbalanced type)

Speaker Impedance
8 ohm, 5W+5W (Dual Type)
16 ohm, 3W (Monitor Type)

2-2 IC Line Up

Table 2-1 IC Line-Up

Loc. No	Specification	Description	Remark
HC101	PAP102	IF PRE-AMP	
IC201	TDA8374A N3	PAL-B/G, SECAM-B/G, NTSC	Philips
IC202	TDA4665	1H DELAY	SECAM MODULE
IC203	TDA8395P	SECAM DECODER	
IC301	TDA8356	VERTICAL OUTPUT	
IC501	TDA6107Q	RGB DRIVE AMP	
IC601	TDA7056B	SOUND-AMP (3.5W)	Monitor Type
IC602	TDA7057AQ	SOUND-AMP (5W+5W)	Dual Type
IC801	KA3S0680R	POWER IC (STR)	
IC802	KA7630	CUSTOM REGULATOR (5V, 8V)	
IC901	SZM193EA	W/O TTX, English/French/Arabian	Zilog (Non TTX)
	SZM193EV	W/O TTX, English/Vietnames/Indonesian/Maly/Thai	
	SZM193EC	W/O TTX, English/Chinese	
	SZM191EC	W/O TTX, English/Chinese	
	SZM193EE	W/O TTX, English/German/French/Dutch/Italian/Spanish, Swedish/Romanian/Hungarian/Croatian/Polish/Russian, Czech/Bulgarian/Yugo/Greek	
	SZM191ER	W/O TTX, English/Russian (Only for Oceania model)	
	SPM197EE	TTX, West : English/German/French/Dutch/Italian/Spanish/Swedish East : English/Czech/Croatian/Romanian/Hungarian/Polish	Philips (TTX)
	SPM197ER	TTX, English/Russian/Bulgarian	
	SPM197EP	TTX, English/Iranian	
	SPM197EA	TTX, English/French/Arabian	
	SPM197EG	TTX, English/Greek/Yugo	
IC902	24C04	EEPROM	
IC903	KiA7042P	RESET IC ,W/O TTX Model	Zilog
	KiA7442P	TTX Model	Philips
IC401	KA7812	REGULATOR (12V)	
PC801	LTV817B	PHOTO COUPLER	NEC

2-3 Semiconductor Base Diagrams

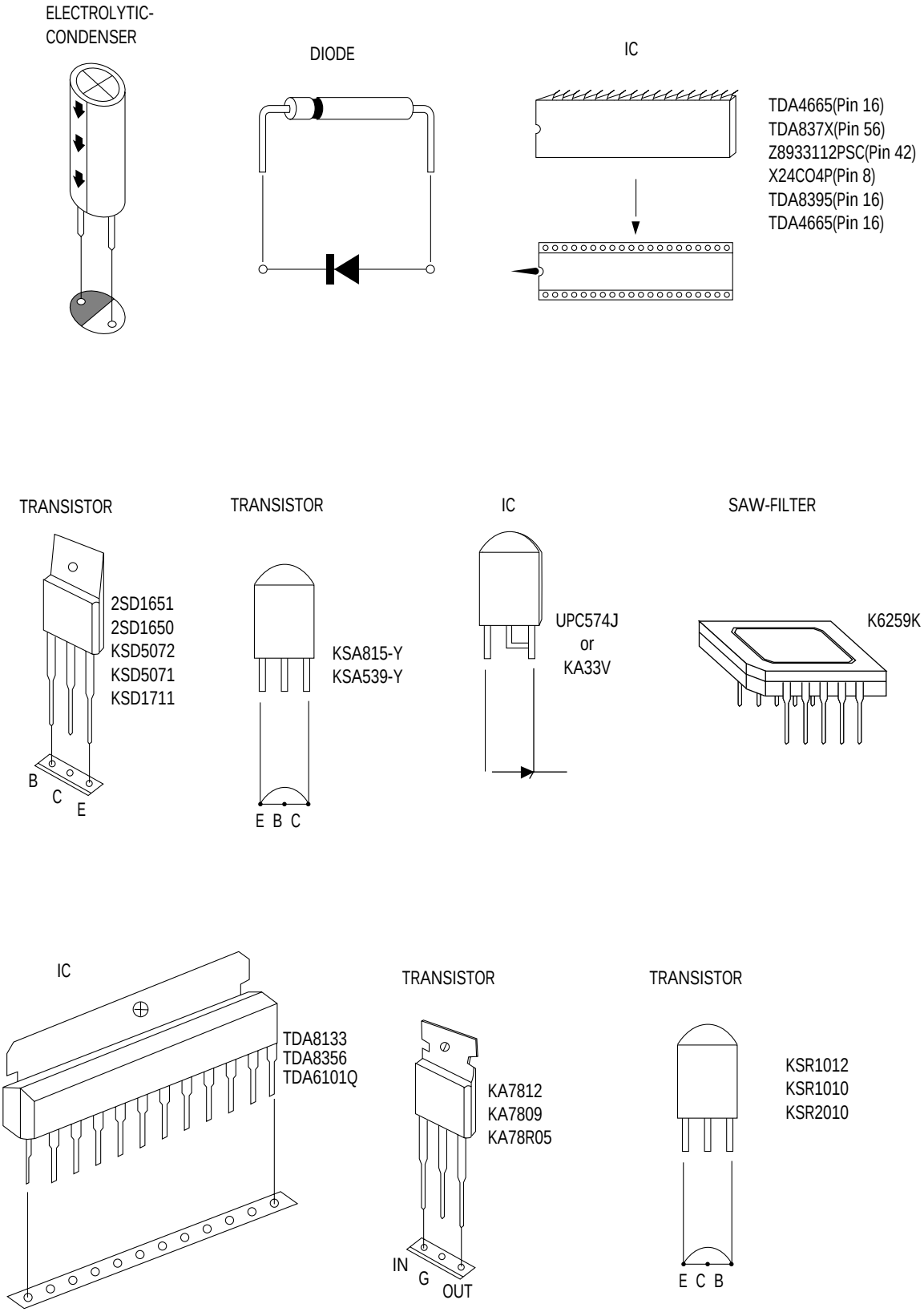
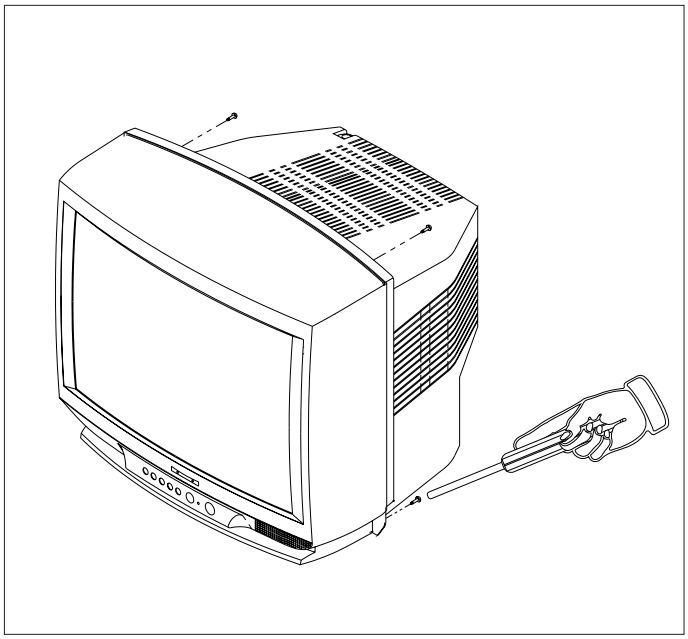


Fig. 2-1 Semiconductor Base Diagrams

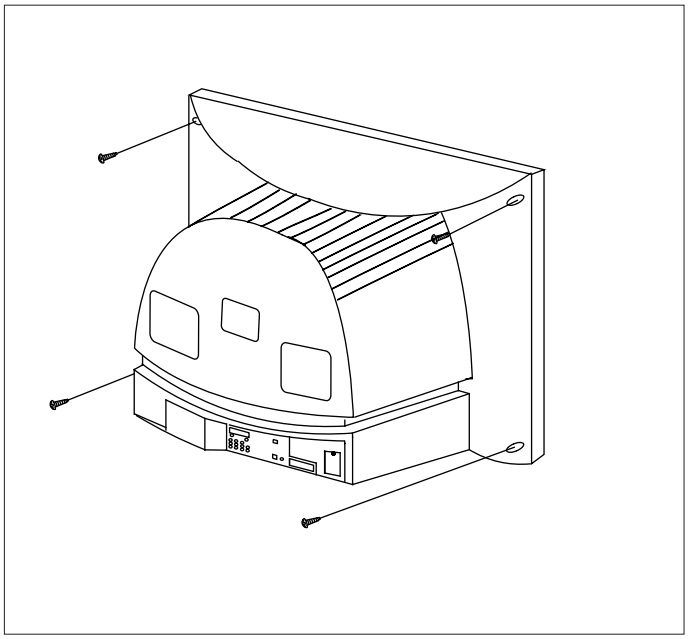
MEMO

3. Disassembly and Reassembly

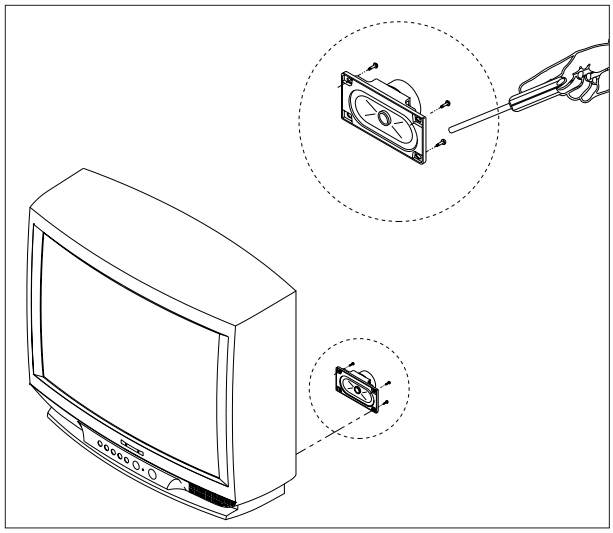
3-1 Back Cover Removal

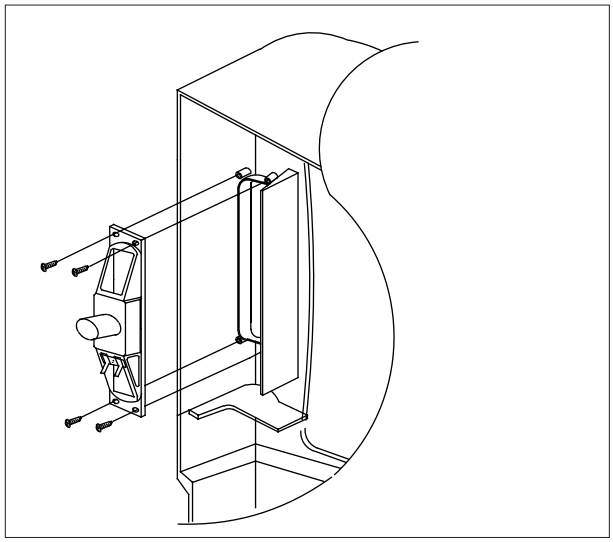


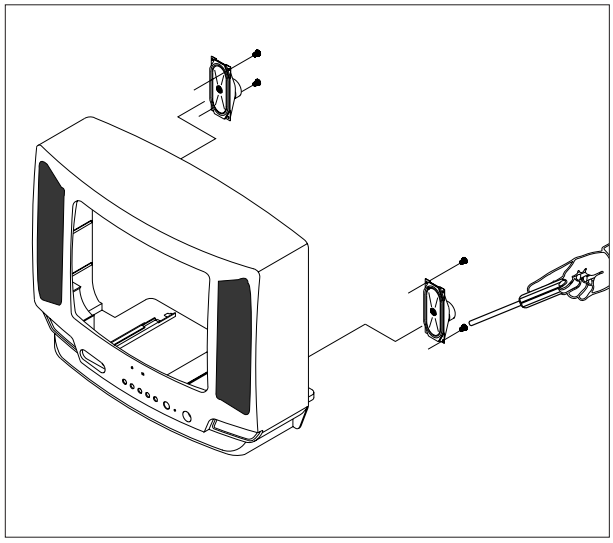
1. After removing the 9 screws, pull the cabinet backwards.



3-2 Speaker Removal

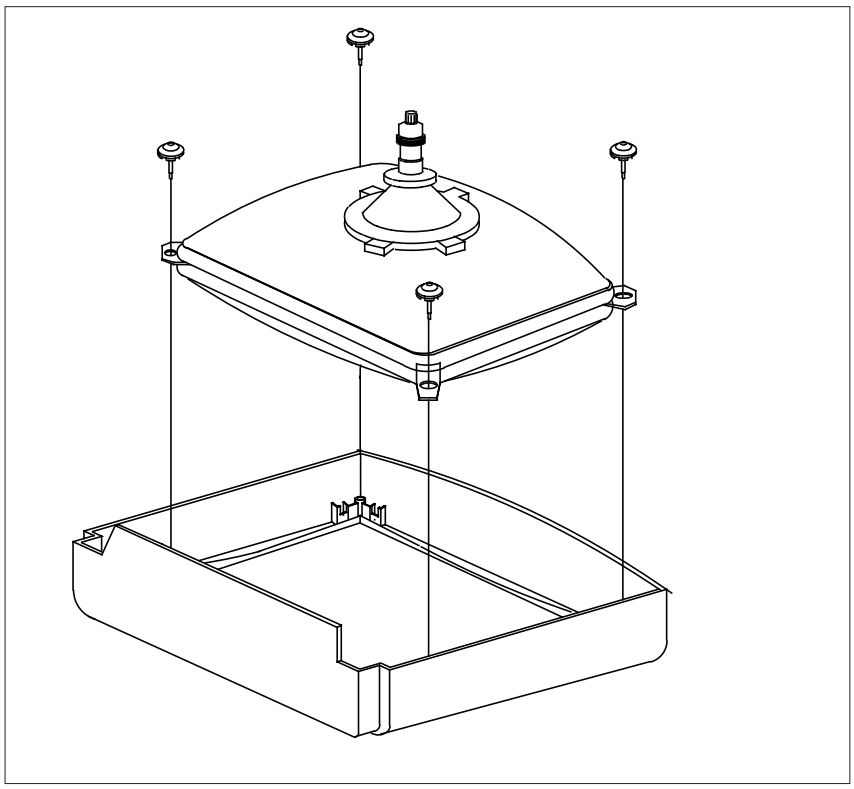






1. Loosen the 4 screws and remove the holder - speakers.

3-3 CRT Removal



1. Spread a soft mat on the floor. Place the TV set face down.
2. Remove the 4 screws mounting the CRT to the front cabinet.
3. Lift the CRT.

MEMO

4. Alignment and Adjustments

4-1 Preadjustment

4-1-1 Factory Mode

1. Do not attempt these adjustments in the Video Mode.

2. The Factory Mode adjustments are necessary when either the EEPROM (IC902) or the CRT is replaced.

3. Do not tamper with the “Adjustment” screen of the Factory Mode menu. This screen is intended only for factory use.

4-1-2 When EEPROM (IC902) Is Replaced

1. When IC902 is replaced all adjustment data revert to initial values. It is necessary to re-program this data.

2. After IC902 is replaced, warm up the TV for 10 seconds.

4-1-3 When CRT Is Replaced

1. Make the following adjustments AFTER setting up after setting up purity and convergence :

   White Balance
   Sub-Brightness
   Vertical Center
   Vertical Size
   Horizontal Size
   Fail Safe (This adjustment must be the last step).

2. If the EEPROM or CRT is replaced, set SC and PVA to 10 and 45 (Factory mode).

   SC : 14, 16 Inch : 0
   20, 21 Inch : 10

4-2 Factory/Service Mode

4-2-1 Procedure for the “Adjustment” Mode

1. This mode uses the standard remote control. The Service Mode is activated by entering the following remote-control sequence :

   (1) SLEEP→FACTORY.

   (2) STAND-BY→P.STD→HELP→SLEEP →POWER ON.

2. The “SERVICE (FACTORY)” message will be displayed. The Service Mode has four components: Adjustment, Test Pattern, Option Bytes and Reset.

3. Access the Adjustment Mode by pressing the “VOLUME” keys (Up or Down).
   The adjustment parameters are listed in the accompanying table, and selected by pressing the CHANNEL keys (▲ ,▼).

4. Selection sequences for the PAL system:

   DOWN or UP key:
   AGC>VCO>SBT>SCT>SCR>SC>RG>
   GG>BG>CDL>BLU>PSL>PVS>PVA>PHS

5. Selection sequences for the NTSC system:

   DOWN or UP key:
   AGC>VCO>SBT>SCT>SCR>SC>RG>
   GG>BG>CDL>BLU>NSL>NVS>NVA>NHS

6. The VOLUME keys increase or decrease the adjustment values, (stored in the non-volatile memory when Adjustment Mode is cancelled).

7. Cancel the Adjustment Mode by re-pressing the “FACTORY” or Power OFF.

4-2-2 Main Adjustment Parameter

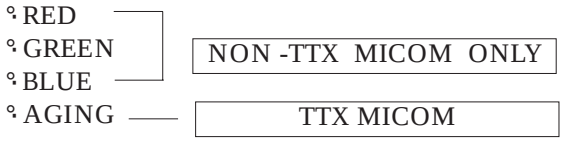
Table 4-1 Main Adjustment Parameter (Zilog, Phlips μ-com)				
FUNCTION	OSD ABBREVIATION	RANGE	INITIAL DATA	REMARKS
AUTO GAIN CONTROL	AGC	0 ~ 63 STEP	32	TDA8374
SUB BRIGHT	SBT	0 ~ 23 STEP	7	
SUB CONTRAST	SCT	0 ~ 23 STEP	7	
SUB COLOR	SCR	0 ~ 23 STEP	13	
RED DRIVE GAIN	RG	0 ~ 63 STEP	32	
GREEN DRIVE GAIN	GG	0 ~ 63 STEP	32	
BLUE DRIVE GAIN	BG	0 ~ 63 STEP	32	
PAL VERTICAL SLOPE	PSL	0 ~ 63 STEP	20	
PAL VERTICAL SHIFT	PVS	0 ~ 63 STEP	32	
PAL VERTICAL AMPLITUDE	PVA	0 ~ 63 STEP	45	
PAL HORIZONTAL SHIFT	PHS	0 ~ 63 STEP	32	
NTSC VERTICAL SLOPE	NSL	0 ~ 63 STEP	20	
NTSC VERTICAL SHIFT	NVS	0 ~ 63 STEP	32	
NTSC VERTICAL AMPLITUDE	NVA	0 ~ 63 STEP	45	
NTSC HORIZONTAL SHIFT	NHS	0 ~ 63 STEP	32	
VOLTAGE CONTROL OSCILLATOR	VCO	0 ~ 128 STEP	64	
S-CORRECTION	SC	0 ~ 63 STEP	32	
TTX SUB-CONTRAST	TSS	0 ~ 63 STEP	16	
CATHODE DRIVE LEVEL	CDL	0 ~ 7 STEP	3	TDA8842
BLUE STRETCH MODE	BLU	0 ~ 3 STEP	2	

NOTE : PVS,PVA, PHS, NVS, NVA,NHS parameters must be aligned using both the 50Hz and 60Hz vertical-field rates.

4-2-3 Test Pattern (Aging Mode)

1. This mode can be used during servicing, or for confirming that the convergence and purity adjustments are correct.

2. Access the Test Pattern parameters by pressing a CHANNEL keys (▲ ,▼) while the Service Mode is on. The cursor will move to the test pattern. Press the VOLUME keys. On-screen display:



3. AGING Mode (Reference Only)

   This pattern is used for pre-heating the CRT during manufacturing—it is accessed in the factory by twice pressing the "SLEEP → FACTORY→FACTORY " key, then white pattern will be displayed.

   Even if the TV power is cut off, the Aging Mode is not cancelled, The aging mode is cancelled by repressing the "FACTORY" key or pressing the local "CH UP/DOWN" key.

   The patterns are displayed at 5 sec intervals : NON-TTX Micom only.

4-2-4 Option Bytes

In the Service Mode, various can be selected via the Option Bytes (8 bits each). Example:

SYSTEM OSD DISPLAY

	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0 : 8 -			L (BIT : 0)	H (BIT : 8)	L (BIT : 0)	L (BIT : 0)	L (BIT : 0)
BYTE 1 : 0 -	L (BIT :0)	L (BIT : 0)	L (BIT : 0)	L (BIT : 0)	L (BIT : 0)	L (BIT : 0)	L (BIT : 0)

TDA8374, CK SYSTEM, RCA JACK SYSTEM OSD DISPLAY

BYTE 0 : 11	L (BIT : 1)	H (BIT : 0)	L (BIT : 0)	H (BIT : 0)	L (BIT : 1)	

4-2-4 (A) OPTION BYTE TABLE

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td>-</td><td></td><td>-</td></tr>
<tr><td>D6</td><td>16:9 not functional during “Zoom” in the A/V Mode</td><td>16:9 functional during “Zoom” in the A/V Mode</td><td></td></tr>
<tr><td>D5</td><td>No Child Lock</td><td>Child Lock</td><td></td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td></td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td></td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : PAL ONLY (NO OSD)</td><td>B/G→D/K → I</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G ONLY (No OSD)</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>B/G→D/K →I→
NT →M</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td colspan="2">TDA8374</td><td>TDA8842</td><td>Onechip</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7
D6</td><td colspan="3"><table>
<tr><th>D7</th><th>D6</th><th>Southeast/Middle East Asia /Africa</th><th>Vietnam/India</th><th>Thailand/Malaysia</th><th>CIS</th><th>China</th></tr>
<tr><td>0</td><td>0</td><td>English Only</td><td>English Only</td><td>English Only</td><td>English Only</td><td>English only</td></tr>
<tr><td>0</td><td>1</td><td>English/Arabian</td><td>English/Vietnamese</td><td>English/Thai</td><td>English/CIS</td><td>English /Chinese</td></tr>
<tr><td>1</td><td>0</td><td>English/Arabian/French</td><td>English/Indonesian</td><td>English/Malay</td><td></td><td></td></tr>
<tr><td>1</td><td>1</td><td>English Only</td><td>English/Vietnamese /Indonesian</td><td>English/Thai /Malay</td><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td>D5</td><td colspan="2">AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td></td></tr>
<tr><td>D4</td><td colspan="2">Existing sharpness level</td><td>Sharpness level Up</td><td>March 12, 1997</td></tr>
<tr><td>D3</td><td colspan="2">No Auto Power On</td><td>Auto Power ON</td><td>Last State Memory</td></tr>
<tr><td>D2</td><td colspan="2">NTSC : 25KHz (NTSC Table)
PAL : 50KHz (PAL Table)</td><td>NTSC : 25KHz (NTSC Table)
PAL : 50KHZ (PAL Table)</td><td>PAL Table always used in the A/V Mode (March 12, 1997)</td></tr>
<tr><td>D1
D0</td><td colspan="3"><table>
<tr><th>D1</th><th>D0</th><th>System</th></tr>
<tr><td>0</td><td>0</td><td>DIG</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>NT-M</td></tr>
</table></td><td>Sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)</td></tr>
</table>

4-2-4 (B) TTX MICOM (SPM-197EE/ER/EG) OPTION TABLE (FOR EUROPE)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE 0</td><td>D7</td><td>3 BAND</td><td>UHF ONLY</td><td>ALL</td></tr>
<tr><td>D6</td><td>16:9 not functional during zoom in the A/V mode (NORMAL-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>ALL (BASIC : LOW)</td></tr>
<tr><td>D5</td><td>LED RED AT STAND-BY</td><td>LED GREEN AT STAND-BY (POLAND)</td><td>ALL (J900 DELETE AT H)</td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>ALL</td></tr>
<tr><td>D3</td><td>P-STD MAX</td><td>P-STD NORMAL</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>SOUND SYSTEM</th><th>COLOR SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>B/G ↔ D/K : CK MODEL</td><td rowspan="4">AUTO
(NO OSD)</td></tr>
<tr><td>0</td><td>1</td><td>I ONLY (NO OSD) : CI, CII MODEL</td></tr>
<tr><td>1</td><td>0</td><td>B/G ONLY (NO OSD) : CB, CX MODEL</td></tr>
<tr><td>1</td><td>1</td><td>NOT USED</td></tr>
</table></td><td>ALL</td></tr>
<tr><td>D0</td><td colspan="2">TDA8374A</td><td>TDA8842</td><td>ALL</td></tr>
<tr><td rowspan="8">BYTE 1</td><td>D7
D6</td><td colspan="2">NOT USED</td><td>ALL (FIX : LOW)</td></tr>
<tr><td>D5</td><td>Western OSD
:English/German/French/Dutch/
Italian/Spanish/Swedish</td><td>Eastern OSD
:English/Croatian/Rumanian/
Hungarian/Hungarian/Polish/Czech</td><td>SPM- 197EE ONLY used
* SPM-197ER : English/Russian/
Bulgarian
*SPM-197EG: English/Greek/
Yugosiavian</td></tr>
<tr><td>D4</td><td>Existing sharpness level
(when using TDA6108 RGB AMP)</td><td>Sharpness level up
(when using TDA6107Q AMP)</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (PAL TABLE)</td><td>ALL (RF VOL. CURVE)
BASIC : LOW
(AV VOL. CURVE : PAL CURVE)</td></tr>
<tr><td>D1</td><td colspan="2">NOT USED (FIX : LOW)</td><td rowspan="2">Sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : Available when the sound is B/G ↔ D/K in the Byte 0</td></tr>
<tr><td>D0</td><td>B/G SOUND</td><td>D/K SOUND</td></tr>
</table>

● P-STD Classification (CON./BRI./SHRP.COL.)

D3 BIT	STANDARD MODE	DYAMIC MODE	MOVIE MODE	MILD MODE	CUSTOM MODE
0	100/50/50/50	100/50/75/50	90/50/75/50	60/50/75/50	100/50/50/50
1	90/50/50/50	100/50/50/50	75/55/50/50	60/50/50/50	90/55/25/50

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE (during no signal)
3. No BLUE SCREEN 4. NO TIMER (CLOCK ON/OFF)

4-2-4 (C) TTX MICOM (SPM-197EP/EPR/EA) OPTION TABLE (FOR MIDDLE EAST)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">B
Y
T
E
0</td><td>D7</td><td colspan="2">NOT USED</td><td>ALL (FIX : LOW)</td></tr>
<tr><td>D6</td><td>16:9 not functional during zoom
(NORMAL-ZOOM)</td><td>16:9 functional during zoom
(NORMAL-ZOOM-16:9)</td><td>EP is an OPTION during A/V
(BASIC : LOW)</td></tr>
<tr><td>D5</td><td colspan="2">NOT USED</td><td>ALL (FIX : LOW)</td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>ALL</td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td>ALL</td></tr>
<tr><td>D2

D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>(?)→B/G→D/K →</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>(?)→B/G→D/K → I→</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY (No OSD)
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G ONLY (No OSD)</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>(?)→B/G→D/K → I→
NT → M →</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td>TDA8374A</td><td>TDA8842</td><td>EP VERSION : TDA8374A ONLY</td></tr>
<tr><td rowspan="8">B
Y
T
E
1</td><td>D7
D6
D5</td><td colspan="2">NOT USED</td><td>ALL (FIX : LOW)</td></tr>
<tr><td>D4</td><td>Existing Sharpness level (when using the TDA6108 RGB AMP)</td><td>Sharpness level up (when using the TDA6107Q RGB AMP)</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (PAL TABLE</td><td>ALL (RF VOL. CURVE)
BASIC : LOW
(AV VOL. CURVE : PAL CURVE)</td></tr>
<tr><td>D1

D0</td><td colspan="2"><table>
<tr><th>D1</th><th>D0</th><th>SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>B/G</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>?(B/G & D/K OR M) /EP VER. : M</td></tr>
</table></td><td>Sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : A single sound in the Byte 0 is unavailable</td></tr>
</table>

● OSD Language by MiCOM
1. Persian (for Iran) : English/Persian (Iranian)
2. Arab (Middle East, Africa) : English/French/Arabian

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE (during no signal)
3. No BLUE SCREEN 4. No TIMER (CLOCK ON/OFF)

4-2-4 (D) TTX MICOM (SPM-193EE/EER) OPTION TABLE (FOR EUROPE)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>REMARK</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td>3 BAND</td><td>UHF ONLY</td><td>SZM-193EE : H NOT functional
SZM-193EER :</td></tr>
<tr><td>D6</td><td>16:9 not functional during zoom in the A/V mode (NORMAL-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>Basic Specification : LOW</td></tr>
<tr><td>D5</td><td>LED RED AT STAND-BY</td><td>LED GREEN AT STAND-BY</td><td>POLAND (J900 DELETE AT H)</td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>BASIC : LOW</td></tr>
<tr><td>D3</td><td>P-STD MAX</td><td>P-STD NORMAL</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D2
D1</td><td colspan="2"><table><tr><th>D2</th><th>D1</th><th>SOUND SYSTEM</th><th>COLOR SYSTEM</th></tr><tr><td>0</td><td>0</td><td>B/G ↔ D/K : CK MODEL</td><td rowspan="4">AUTO
(NO OSD)</td></tr><tr><td>0</td><td>1</td><td>I ONLY (NO OSD) : CI, CII MODEL</td></tr><tr><td>1</td><td>0</td><td>B/G ONLY (NO OSD) : CB, CX MODEL</td></tr><tr><td>1</td><td>1</td><td>NOT USED</td></tr></table></td><td>SOUND SYSTEM OPTION</td></tr>
<tr><td>D0</td><td>TDA8374A</td><td>TDA8842</td><td>IC201 (ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7
D6</td><td colspan="2"><table><tr><th>D7</th><th>D6</th><th>OSD Language</th></tr><tr><td>0</td><td>0</td><td rowspan="2">English/German/French/Dutch/
Italian/Spanish/Swedish</td></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td><td>English/Romanian/Hungarian/
Croatian/Polish/Czech/Russian</td></tr><tr><td>1</td><td>1</td><td>English/Bulgarian/Greek/Yugo</td></tr></table></td><td>Language Option</td></tr>
<tr><td>D5</td><td>AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW</td></tr>
<tr><td>D4</td><td>Existing Sharpness level
(when using TDA6108 RGB AMP)</td><td>Sharpness level up
(when using TDA6107Q AMP)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>BASIC: HIGH</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (NTSC TABLE)</td><td>RF VOL. : CURVE, BASIC : LOW
(AV VOL. CURVE:PAL CURVE)</td></tr>
<tr><td>D1</td><td colspan="2">NOT USED (FIX : LOW)</td><td rowspan="2">Sound system during the Auto search (All should be set for the system which is selected during the Factory Reset.)
Note: Only available during the specification of CK model in the Byte 0</td></tr>
<tr><td>D0</td><td>SOUND B/G</td><td>SOUND D/K</td></tr>
</table>

● P-STD Classification (CON./BRI./SHRP./COL.)

D3 BIT	STANDARD MODE	DYAMIC MODE	MOVIE MODE	MILD MODE	CUSTOM MODE
0	100/50/50/50	100/50/75/50	90/50/75/50	60/50/75/50	100/50/50/50
1	90/50/50/50	100/50/50/50	75/55/50/50	60/50/50/50	90/55/25/50

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE (during no signal)
3. No BLUE SCREEN during no RF signal (Blue screen during A/V 4. NO TIMER

4-2-4 (E) TTX MICOM (SZM-193EA/EAR/EV) OPTION TABLE

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td>LINE STEREO OFF</td><td>LINE STEREO ON</td><td>ALL</td></tr>
<tr><td>D6</td><td>16:9 not function during zoom in the A/V mode (Normal-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td>CHILD LOCK OFF</td><td>CHILD LOCK ON</td><td>ALL (No SZM193EA)</td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>ALL</td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td>ALL</td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>B/G→D/K</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G ONLY (No OSD)</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I→
NT → M →</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td colspan="2">TDA8374A</td><td>TDA8842</td><td>ALL (No SZM193EA)</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7
D6</td><td colspan="3"><table>
<tr><th>D7</th><th>D6</th><th>Middle East/Africa Version</th><th>Asia Version (SZM193EV)</th></tr>
<tr><td>0</td><td>0</td><td>English ONLY</td><td>English only</td></tr>
<tr><td>0</td><td>1</td><td>English/Arabian</td><td>English/Indonesian/Malay/Thai/Vietnamese</td></tr>
<tr><td>1</td><td>0</td><td>English/Arabian/French</td><td>English/Vietnamese/Indonesian</td></tr>
<tr><td>1</td><td>1</td><td>English ONLY</td><td>English/Thai/Malay</td></tr>
</table></td><td></td></tr>
<tr><td>D5</td><td colspan="2">AFT ON (always)</td><td>AFT OFF after fine tuning (for India)</td><td>ALL (No SZM-193EA)</td></tr>
<tr><td>D4</td><td colspan="2">Existing Sharpness level
(when using TDA6108 RGB AMP)</td><td>Sharpness level up
(when using TDA6107Q RGB AMP)</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D3</td><td colspan="2">No Auto Power On</td><td>Auto Power On</td><td>ALL (BASIC : HIGH)</td></tr>
<tr><td>D2</td><td colspan="2">NTSC : 25KHz(NTSC TABLE)
PAL : 50 KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (NTSC TABLE)</td><td>ALL (RF VOL.: HIGH)
BASIC : LOW
(AV VOL. CURVE : PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="3"><table>
<tr><th>D1</th><th>D0</th><th>SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>B/G</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>NT-M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be for the system which is selected during the Factory Reset.)
Note : Unavailable during the CB model in the byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE (during no signal)
3. No BLUE SCREEN 4. TIMER (CLOCK ON/OFF)

4-2-4 (F) TTX MICOM (SZM-191ER) OPTION TABLE (FOR RUSSIA, OCEANIA)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D6</td><td>16:9 not functional during zoom in the A/V mode (NORMAL-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td></td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td>BASIC : LOW</td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>B/G→D/K</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY (No OSD)
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G OSD</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I→
NT → M</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td>TDA8374A</td><td>TDA8842</td><td>IC201(ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D6</td><td>English ONLY</td><td>English/Russian</td><td>Language option</td></tr>
<tr><td>D5</td><td>AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW</td></tr>
<tr><td>D4</td><td>Existing Sharpness level (when using TDA6108 RGB AMP)</td><td>Sharpness level up (when using the TDA6107Q RGB AMP)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>BASIC : HIGH</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (PAL TABLE)</td><td>ALL (RF VOL. CURVE) , BASIC :LOW
(AV VOL. CURVE: PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="2"><table>
<tr><th>D1</th><th>D0</th><th>System</th></tr>
<tr><td>0</td><td>0</td><td>DIG</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>NT-M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : Unavailable during the CB model in the Byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE during no signal
3. BLUE SCREEN ON/OFF 4. No TIMER CLOCK

● The SZM191ER is to be diverted to Australia/New Zealand because of the non-functionality of RGB (of pin 21).
(OPTION BYTE : 55/1C)→ When using TDA8842 N1, the BLOOMING check is required.

4-2-4 (G) TTX MICOM (SZM-193EVR) OPTION TABLE (FOR ASIA)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td>LINE STEREO OFF</td><td>LINE STEREO ON</td><td></td></tr>
<tr><td>D6</td><td>16:9 not function during zoom in the A/V mode (Normal-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td>CHILD LOCK OFF</td><td>CHILD LOCK ON</td><td></td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td></td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>B/G→D/K</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G ONLY (No OSD)</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I→
NT → M →</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td colspan="2">TDA8374A</td><td>TDA8842</td><td>IC201 (ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7
D6</td><td colspan="2"><table>
<tr><th>D7</th><th>D6</th><th>OSD Language</th></tr>
<tr><td>0</td><td>0</td><td>English ONLY</td></tr>
<tr><td>0</td><td>1</td><td>English/Indonesian/Malay/Thai/Vietnamese</td></tr>
<tr><td>1</td><td>0</td><td>English/Vietnamese/Indonesian</td></tr>
<tr><td>1</td><td>1</td><td>English/Thai/Malay</td></tr>
</table></td><td>Language option</td></tr>
<tr><td>D5</td><td>AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW(India : HIGH)</td></tr>
<tr><td>D4</td><td>CLOCK DISPLAY
OFF</td><td>CLOCK DISPLAY
ON</td><td>BASIC : LOW
Indonesia : HIGH</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>BASIC : HIGH</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz(NTSC TABLE)
PAL : 50 KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (NTSC TABLE)</td><td>ALL (RF VOL.: HIGH)
BASIC : LOW
(AV VOL. CURVE : PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="2"><table>
<tr><th>D1</th><th>D0</th><th>SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>B/G</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>NT-M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : Unavailable during the CB model in the Byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE during no signal
3. BLUE SCREEN On/off 4. TIMER CLOCK ON/OFF

4-2-4 (H) NON TTX MICOM (SZM-193EV2) OPTION TABLE (FOR ASIA)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE 0</td><td>D7</td><td>LINE STEREO OFF</td><td>LINE STEREO ON</td><td></td></tr>
<tr><td>D6</td><td>16:9 not function during zoom
(Normal-ZOOM)</td><td>16:9 functional during zoom
(NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td>CHILD LOCK OFF</td><td>CHILD LOCK ON</td><td></td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td></td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>(?)→B/G→D/K →</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>(?)→B/G→D/K → I→</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY (No OSD)
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G ONLY (No OSD)</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>(?)→B/G→D/K → I→
NT → M →</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td colspan="2">TDA8374A</td><td>TDA8842</td><td>IC201 (ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE 1</td><td>D7
D6</td><td colspan="2"><table>
<tr><th>D7</th><th>D6</th><th>OSD Language</th></tr>
<tr><td>0</td><td>0</td><td>English ONLY</td></tr>
<tr><td>0</td><td>1</td><td>English/Indonesian/Malay/Thai/Vietnamese</td></tr>
<tr><td>1</td><td>0</td><td>English/Vietnamese/Indonesian</td></tr>
<tr><td>1</td><td>1</td><td>English/Thai/Malay</td></tr>
</table></td><td>Language option</td></tr>
<tr><td>D5</td><td>AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW(India : HIGH)</td></tr>
<tr><td>D4</td><td>CLOCK DISPLAY
OFF</td><td>CLOCK DISPLAY
ON</td><td>BASIC : LOW
Indonesia : HIGH</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>BASIC : HIGH</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz(NTSC TABLE)
PAL : 50 KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (NTSC TABLE)</td><td>RF VOL.CURVE
BASIC : LOW
(AV VOL. CURVE : PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="2"><table>
<tr><th>D1</th><th>D0</th><th>SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>B/G</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>?) B/G & D/K OR M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note: Unavailable during the CB model in the Byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE during no signal
3. BLUE SCREEN On/off 4. TIMER Clock On/Off

4-2-4 (I) TTX MICOM (SPM-193EA2) OPTION TABLE (FOR MIDDLE EAST ASIA/AFRICA)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE 0</td><td>D7</td><td colspan="2">LINE STEREO OFF</td><td>LINE STEREO ON</td><td></td></tr>
<tr><td>D6</td><td colspan="2">16:9 not functional during zoom in the A/V mode (NORMAL-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td colspan="2">CHILD LOCK OFF</td><td>CHILD LOCK ON</td><td></td></tr>
<tr><td>D4</td><td colspan="2">CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td></td></tr>
<tr><td>D3</td><td colspan="2">SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td></td></tr>
<tr><td>D2
D1</td><td colspan="3"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>(?)→B/G→D/K →</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>(?)→B/G→D/K → I→</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY (No OSD)
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G ONLY (No OSD)</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>(?)→B/G→D/K → I→
NT → M →</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td colspan="2">TDA8374A</td><td>TDA8842</td><td>IC201 (ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE 1</td><td>D7
D6</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D5</td><td colspan="2">AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW</td></tr>
<tr><td>D4</td><td colspan="2">Existing Sharpness level (when using the TDA6108 RGB AMP)</td><td>Sharpness level up (when using the TDA6107Q RGB AMP)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td colspan="2">No Auto Power On</td><td>Auto Power On</td><td>BASIC : HIGH</td></tr>
<tr><td>D2</td><td colspan="2">NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (PAL TABLE)</td><td>ALL (RF VOL. CURVE)
BASIC : LOW
(AV VOL. CURVE : PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="3"><table>
<tr><th>D1</th><th>D0</th><th>SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>B/G</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>? B/G & D/K OR M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : Unavailable during the CB model in the Byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE (during no signal)
3. BLUE SCREEN On/Off 4. No Timer Clock On/Off

4-2-4 (J) TTX MICOM (SZM-193EC) OPTION TABLE (FOR CHINA)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Remark</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td>LINE STEREO OFF</td><td>LINE STEREO ON</td><td>BASIC : LOW</td></tr>
<tr><td>D6</td><td>16:9 not functional during zoom in the A/V mode (NORMAL-ZOOM)</td><td>16:9 functional during zoom in the A/V mode (NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td>CHILD LOCK OFF</td><td>CHILD LOCK ON</td><td></td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td>BASIC : LOW</td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td>BASIC : HIGH</td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>B/G→D/K</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY (No OSD)
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G OSD</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I→
NT → M</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td>TDA8374A</td><td>TDA8842</td><td>IC201(ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D6</td><td>English ONLY</td><td>English/Russian</td><td>Language option</td></tr>
<tr><td>D5</td><td>AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW</td></tr>
<tr><td>D4</td><td>Existing Sharpness level (when using TDA6108 RGB AMP)</td><td>Sharpness level up (when using the TDA6107Q RGB AMP)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>BASIC : HIGH</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (PAL TABLE)</td><td>ALL (RF VOL. CURVE) , BASIC:LOW
(AV VOL. CURVE: PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="2"><table>
<tr><th>D1</th><th>D0</th><th>System</th></tr>
<tr><td>0</td><td>0</td><td>DIG</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>NT-M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : Unavailable during the CD model in the Byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE during no signal
3. BLUE SCREEN On/Off 4. TIMER CLOCK On/Off

4-2-4 (K) NON TTX MICOM (SZM-191EC) OPTION TABLE (FOR CHINA)

<table>
<tr><th>BYTE</th><th>BIT</th><th>LOW (0)</th><th>HIGH (1)</th><th>Application MICOM</th></tr>
<tr><td rowspan="8">BYTE0</td><td>D7</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D6</td><td>16:9 not functional during zoom (NORMAL-ZOOM)</td><td>16:9 functional during zoom (NORMAL-ZOOM-16:9)</td><td>BASIC : LOW</td></tr>
<tr><td>D5</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D4</td><td>CH Up/down functional in the A/V mode (SCART Jack)</td><td>CH Up/down not functional in the A/V mode (RCA Jack)</td><td></td></tr>
<tr><td>D3</td><td>SOUND-I SYSTEM USED</td><td>SOUND-I SYSTEM NOT USED</td><td>BASIC : LOW</td></tr>
<tr><td>D2
D1</td><td colspan="2"><table>
<tr><th>D2</th><th>D1</th><th>COLOR SYSTEM</th><th>SOUND SYSTEM</th></tr>
<tr><td>0</td><td>0</td><td>CK : AUTO (No OSD)</td><td>B/G→D/K</td></tr>
<tr><td>0</td><td>1</td><td>CW : -. RF : AUTO→PAL →SECAM→NT4.43
-. A/V : AUTO→PAL→SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I</td></tr>
<tr><td>1</td><td>0</td><td>CB : -RF : PAL ONLY (No OSD)
-A/V : AUTO→PAL →NT4.43→NT3.58</td><td>B/G OSD</td></tr>
<tr><td>1</td><td>1</td><td>CS : - RF : AUTO→PAL →SECAM →NT4.43→NT 3.58
-A/V : AUTO→PAL →SECAM →NT4.43 →NT3.58</td><td>B/G→D/K → I→
NT → M</td></tr>
</table></td><td></td></tr>
<tr><td>D0</td><td>TDA8374A</td><td>TDA8842</td><td>IC201(ONE-CHIP) OPTION</td></tr>
<tr><td rowspan="8">BYTE1</td><td>D7</td><td colspan="2">NOT USED</td><td>FIX : LOW</td></tr>
<tr><td>D6</td><td>English ONLY</td><td>English/Russian</td><td>Language option</td></tr>
<tr><td>D5</td><td>AFT ON (always)</td><td>AFT OFF (after fine tuning)</td><td>BASIC : LOW</td></tr>
<tr><td>D4</td><td>Existing Sharpness level (when using TDA6108 RGB AMP)</td><td>Sharpness level up (when using the TDA6107Q RGB AMP)</td><td>BASIC : HIGH</td></tr>
<tr><td>D3</td><td>No Auto Power On</td><td>Auto Power On</td><td>BASIC : HIGH</td></tr>
<tr><td>D2</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 50KHz (PAL TABLE)</td><td>NTSC : 25KHz (NTSC TABLE)
PAL : 27KHz (PAL TABLE)</td><td>ALL (RF VOL. CURVE) , BASIC :LOW
(AV VOL. CURVE: PAL CURVE)</td></tr>
<tr><td>D1
D0</td><td colspan="2"><table>
<tr><th>D1</th><th>D0</th><th>System</th></tr>
<tr><td>0</td><td>0</td><td>DIG</td></tr>
<tr><td>0</td><td>1</td><td>D/K</td></tr>
<tr><td>1</td><td>0</td><td>I</td></tr>
<tr><td>1</td><td>1</td><td>NT-M</td></tr>
</table></td><td>Initial sound system during the auto search (All should be set for the system which is selected during the Factory Reset.)
Note : Unavailable during the CD model in the Byte 0</td></tr>
</table>

● Function Required : 1. PICTURE OFF (after 15 minutes) during no signal 2. AUDIO MUTE during no signal
3. BLUE SCREEN ON/OFF 4. No TIMER CLOCK

4-2-5 RESET

The Reset Mode is used during factory inspection.
Function Reset:

1.	Channels	Add/Erase
2.	Sort	Non
3.	System	Auto
4.	Timer	off
5.	Blue Screen	off
6.	Child Lock	off
7.	Picture	standard
8.	Volume	26
9.	CH. Skip	Erased

4-3 Other Adjustments

4-3-1 General

1. Usually, a color TV needs only slight touch-up adjustment upon installation. Check the basic characteristics such as height, horizontal and vertical sync and focus.

2. The picture should have good black and white details. There should be no objectionable color shading; if color shading is present, perform the purity and convergence adjustments described below.

3. Use the specified test equipment or its equivalent.

4. Correct impedance matching is essential.

5. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test results.

6. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.

7. Do not attempt to connect or disconnect any wires while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.

8. To protect against shock hazard, use an isolation transformer.

4-3-2 Automatic Degaussing

A degaussing coil is mounted around the picture tube, so that external degaussing after moving the TV should be unnecessary. But the receiver must be properly degaussed upon installation.

The degaussing coil operates for about 1 second after the power is switched ON. If the set has been moved or turned in a different direction, disconnect its AC power for at least 10 minutes.

If the chassis or parts of the cabinet become magnetized, poor color purity will result. If this happens, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube and the sides and front of the receiver. Slowly withdraw the coil to a distance of about 6 feet before removing power.

4-3-3 High Voltage Check

CAUTION: There is no high voltage adjustment on this chassis. The B+ power supply must be set to +125 volts (Full color bar input and normal picture level).

1. Connect a digital voltmeter to the second anode of the picture tube.
2. Turn on the TV. Set the Brightness and Contrast controls to minimum (zero beam current).
3. The high voltage should not exceed 27.5KV.
4. Adjust the Brightness and contrast controls to both extremes. Ensure that the high voltage does not exceed 27.5KV under any conditions.

4-3-4 FOCUS Adjustment

1. Input a black and white signal.
2. Adjust the tuning control for the clearest picture.
3. Adjust the FOCUS control for well defined scanning lines in the center area of the screen.

4-3-5 Cathode Voltage Adjustment (Screen Adjustment)

1. Connect CRT socket pin GK to an oscilloscope probe.
2. Input a gray scale pattern. (Use a pattern generator, PM5518)
3. Use the P mode key (on the remote control) for the STANDARD picture.
4. Adjust the Screen VR (on the FBT) so that the voltage on the oscilloscope becomes 130±2.5V (See Fig. 4-1).

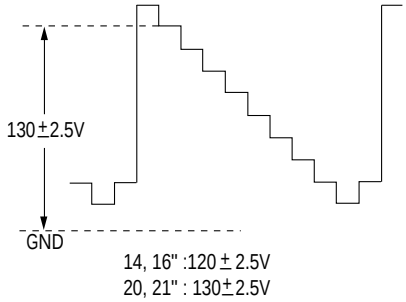


Fig. 4-1

4-3-6 Purity Adjustment

1. Warm up the receiver for at least 20 minutes.
2. Plug in the CRT deflection yoke and tighten the clamp screw.
3. Plug the convergence yoke into the CRT and set in as shown in Fig. 4-2.
4. Input a black and white signal.
5. Fully demagnetize the receive by applying an external degaussing coil.
6. Turn the CONTRAST and BRIGHTNESS controls to maximum.
7. Loosen the clamp screw holding the yoke. Slide the yoke backward or forward to provide vertical green belt. (Fig. 4-3).
8. Tighten the convergence yoke.
9. Slowly move the deflection yoke forward, and adjust for the best overall green screen.
10. Temporarily tighten the deflection yoke.
11. Produce blue and red rasters by adjusting the low-light controls. Check for good purity in each field.
12. Tighten the deflection yoke.

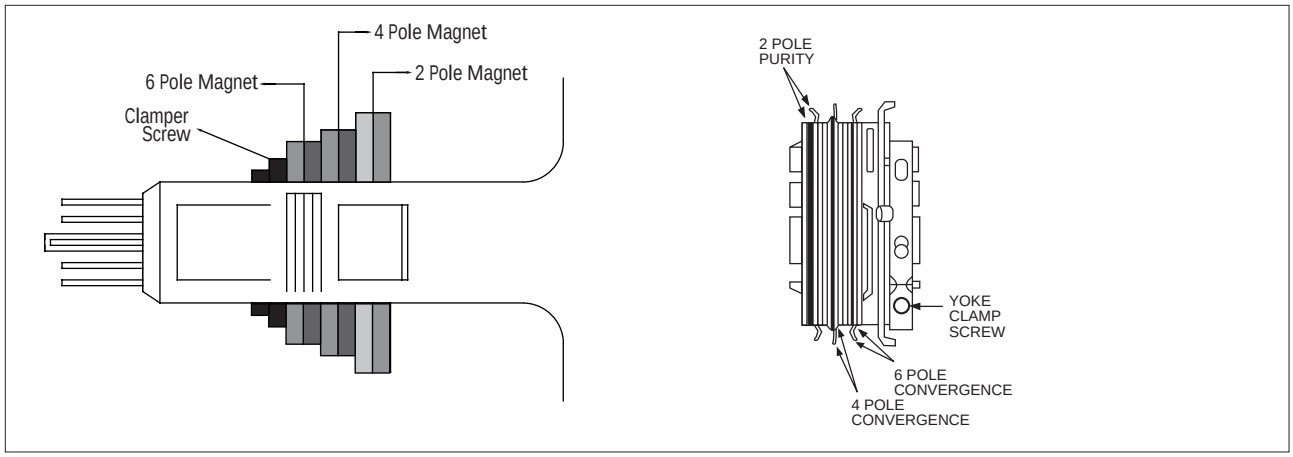


Fig. 4-2 Convergence Magnet Assembly

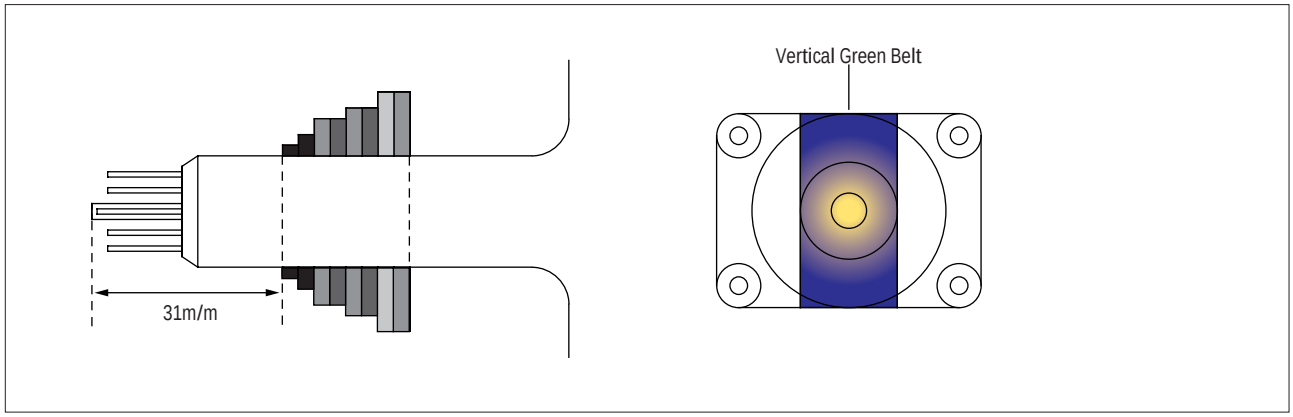


Fig. 4-3 Center Convergence Adjustment

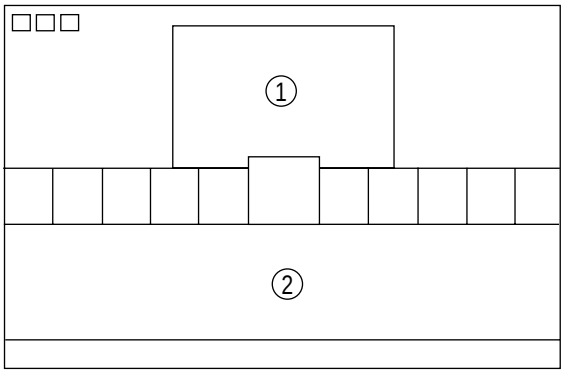


Fig. 4-4

4-3-7 White Balance Adjustment

(a) Set up

1. Warm up the TV for at least 30 minutes in the Aging Mode (OSD White). This mode is displayed by entering the following sequence:

   SLEEP →FACTORY → FACTORY

2. Input a Toshiba pattern.

(b) High-Light Adjustment

1. Set SBT to 2.0 fL in the Factory Service Mode with using CA100. See Fig. 4-4 ②.

2. Adjust RG,BG so that the levels are suitable to each local area.

(c) Low-Light Adjustment

1. Set SCT to 50.0 fL in the Factory Service Mode with using CA100. See Fig. 4-4 ①.

4-3-8 Center Convergence Adjustment

1. Warm up the receiver for at least 20 minutes.
2. Adjust the two tabs of the 4 pole magnets to change the angle between them. Superimpose the red and blue vertical lines in the center area of the screen.
3. Adjust the Brightness and Contrast controls for a well defined picture.
4. Adjust the two-tab pairs of the 4 pole magnets, and change the angle between them. Superimpose the red and the blue vertical lines in the center area of the screen.
5. Turn the both tabs at the same time, keeping the angle constant, and superimpose the red and blue horizontal line in the center of the screen.
6. Adjust the two-tab pairs of the 6-pole magnets to superimpose the red and blue line onto the green. (Changing the angle affects the vertical lines, and rotating both magnets affects the horizontal lines.)
7. Repeat adjustments 2~6, if necessary.
8. Since the 4-pole magnets and 6-pole magnets interact, the dot movement is complex (Fig. 4-5).

Fig. 4-5 Center Convergence Adjustment

4-3-9 VCO Adjustment

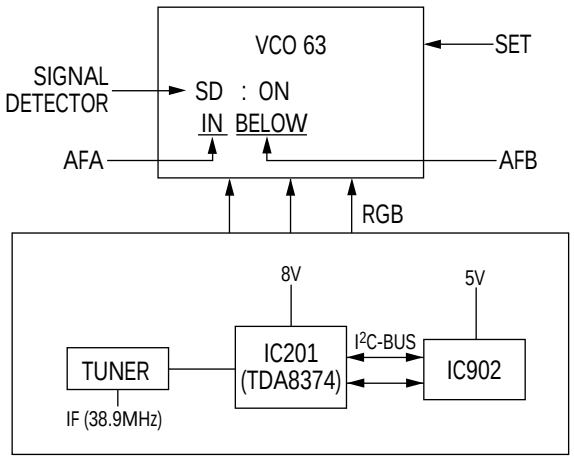


Fig. 4-6

1. Turn on the TV.
2. Set IF port of tuner to 38.9MHz. (Use a pattern generator).
3. Input a color bar pattern (PAL-B/G system).
4. In the Factory Service Mode, select "Adjustment → VCO" and set VCO data to 63.
5. Ensure "SD On" (Signal Input) and "SD Off" (No Signal).
6. Adjust T201 (connected to TDA8374A pins3,4) so that AFA Bit is "INSIDE WINDOW" (the AFB Bit is above~below).

4-3-10 RF AGC Adjustment

1. Connect a pattern generator (PM5418) RF signal to tuner RF.
2. Select a gray scale pattern and PAL-B/G system. Set to 479.25MHz.
3. Connect IC201 (ONECHIP) pin 53 to a digital multimeter.
4. Adjust AGC (using volume keys)in the Factory Service Mode. Set IC201 (ONECHIP) pin 54 to 3.7 ± 0.05V (DC).
5. Adjust AGC within 20 seconds after power ON.

4-3-11 Sub-Color Adjustment

Set the SCR data steps to 15 in the Factory Mode.

4-3-12 Geometry Adjustment

(SC →PVA→PVS→ PSL →PHS)

1. Input a lion head pattern (in the PAL channel).
2. Set the SC (S-Correction) 10 data steps and PSL 20 data steps so that the lion head circle becomes oval.
3. Adjust with PVS (Vertical-shift) : Lion head pattern and mechanical centers must be aligned.
4. Adjust with PVA (Vertical-Amplitude) : Top margin of the picture is 4.

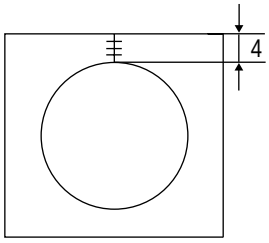


Fig. 4-7

5. Adjust with PSL (Vertical-Slope) : Bottom margin of the picture is 4.

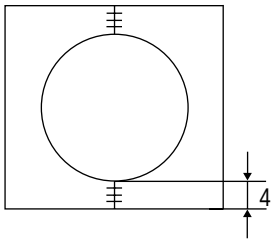


Fig. 4-8

6. Adjust with PHS (Horizontal Shift) : Lion head pattern and CRT centers are aligned.

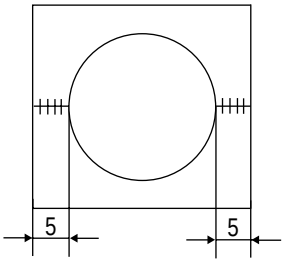


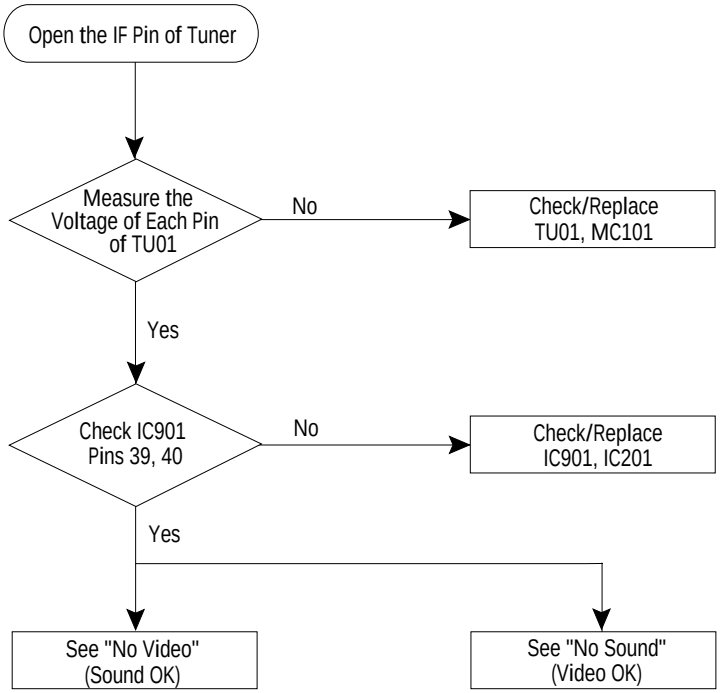
Fig. 4-9

7. Adjust PHS (using the width coil) so that left and right margins of the picture are 5.

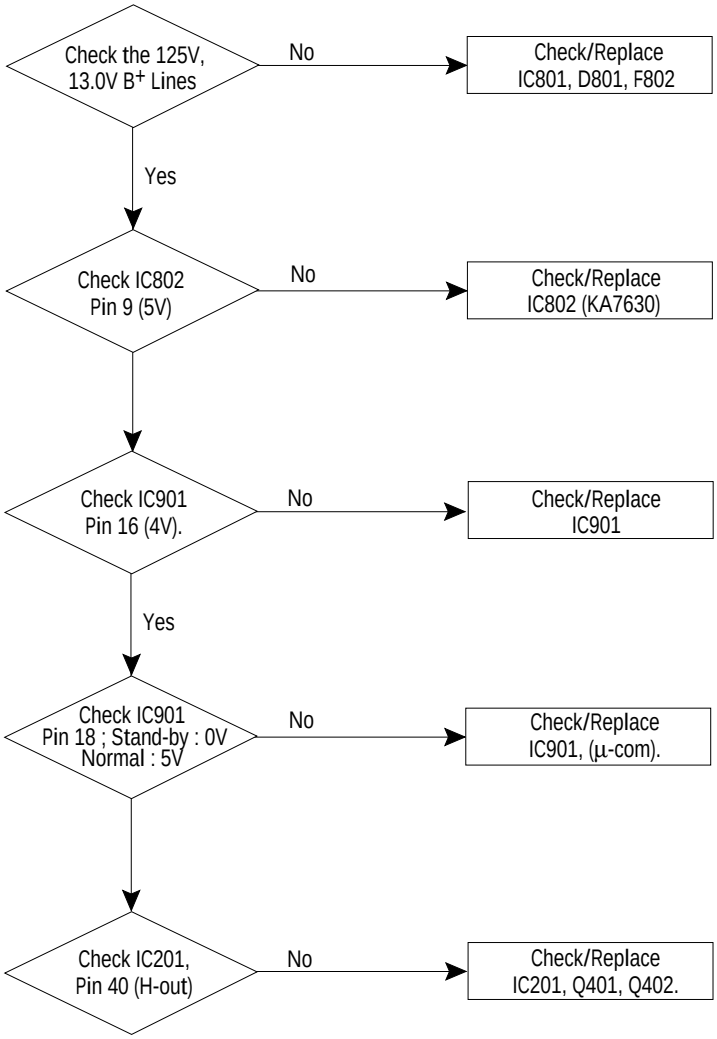
MEMO

5. Troubleshooting

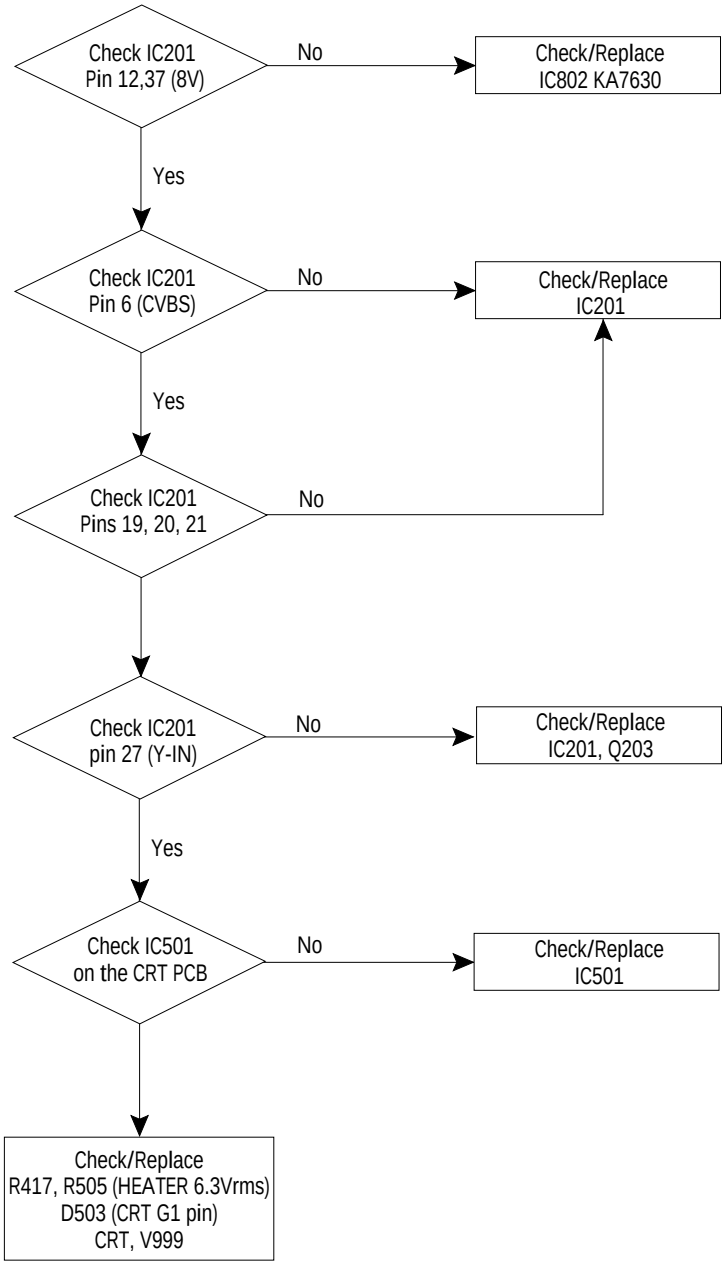
5-1 No Video (Raster On, No Sound)



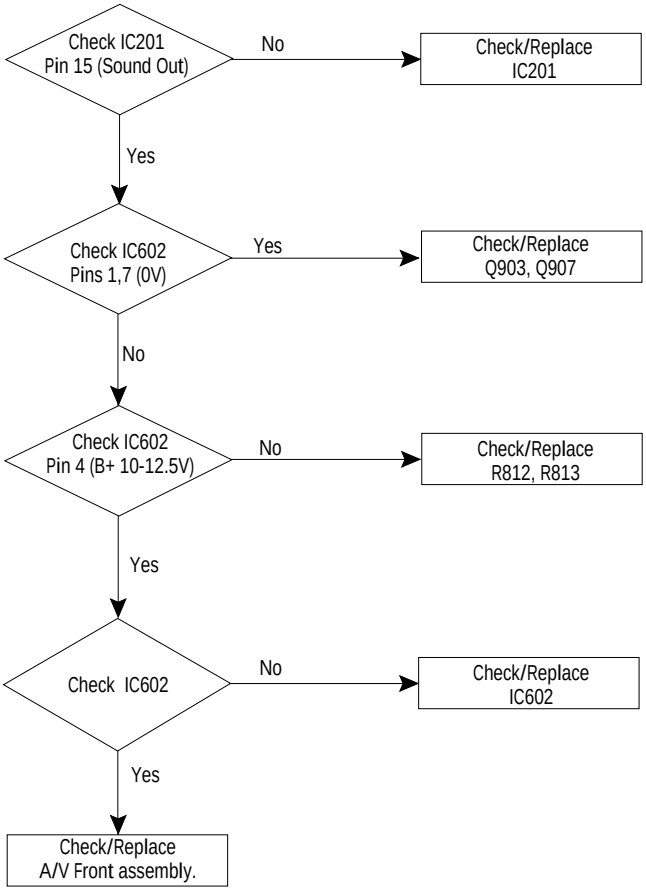
5-2 No Power


Check the 125V, 13.0V B+ Lines
No
Check/Replace IC801, D801, F802
Yes
Check IC802 Pin 9 (5V)
No
Check/Replace IC802 (KA7630)
Check IC901 Pin 16 (4V).
No
Check/Replace IC901
Yes
Check IC901 Pin 18 ; Stand-by : 0V Normal : 5V
No
Check/Replace IC901, (μ-com).
Check IC201, Pin 40 (H-out)
No
Check/Replace IC201, Q401, Q402.

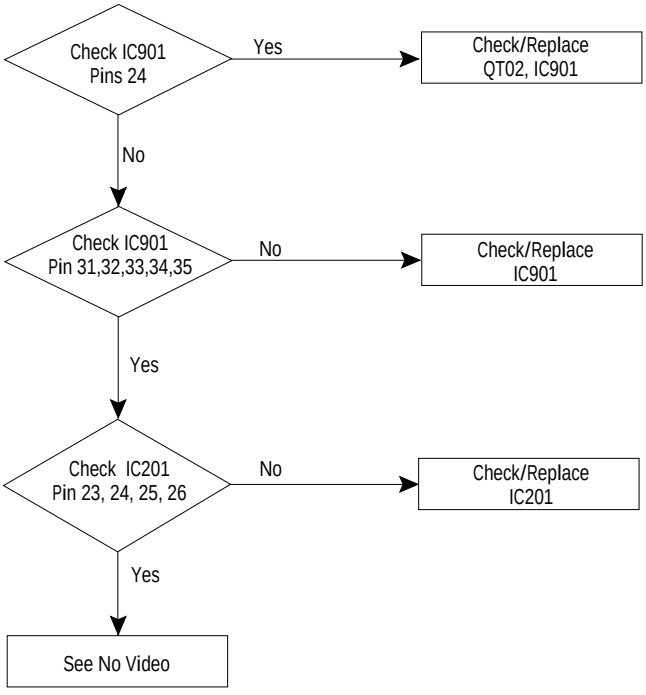
5-3 No Video (Sound OK)



5-4 No Sound (Video OK)

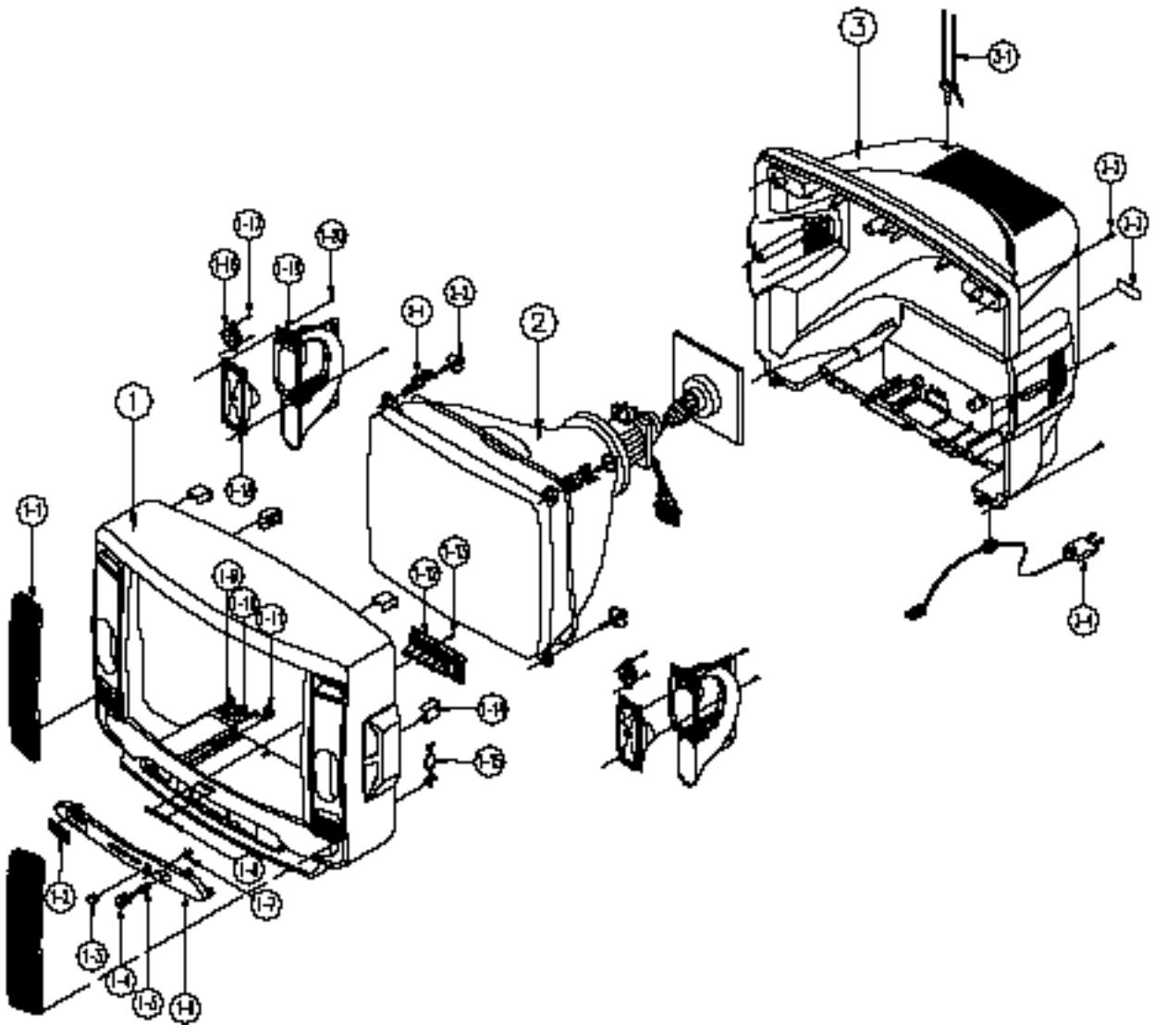


5-5 No TTX



6. Exploded View & Parts List

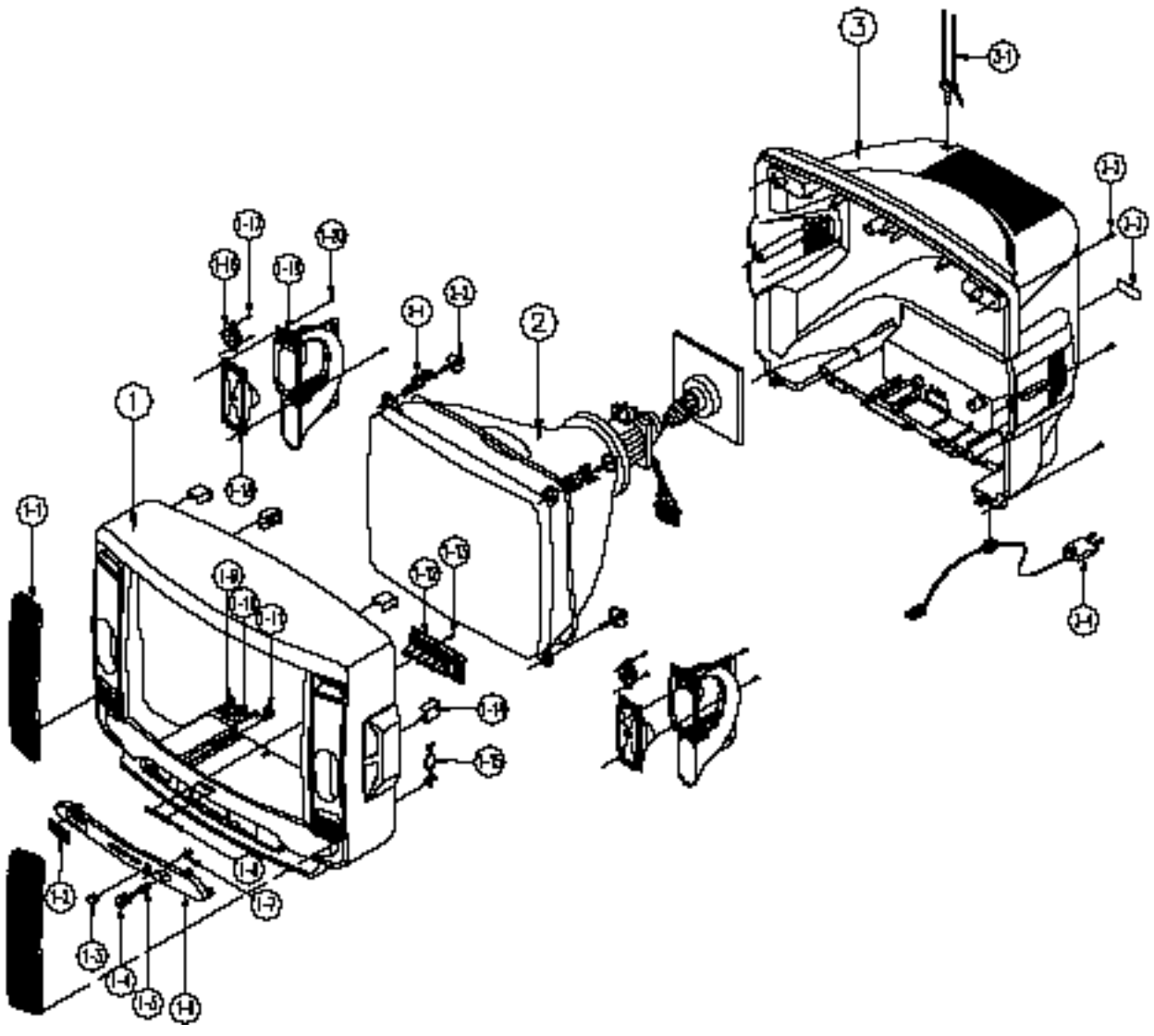
6-1 CK503ETR4S/NWT



No	Code No	Description
1	AA91-10354C	ASSY-CABINET,F
	AA64-31037A	CABINET-FRONT
1-1	AA63-50319A	GRILLE-WOOFER
1-2	AA64-60404B	INLAY-AV,HEAD
1-3	AA64-40431A	WINDOW-REMC
1-4	AA64-10670A	KNOB-POWER
1-5	AA61-60003T	SPRING-CS
1-6	AA63-30192J	COVER-CONTROI
1-7	AA64-40432A	INDICATOR-LED
1-8	AA64-70010B	BADGE-BRAND
1-9	AA60-10002A	SCREW-TAPPINC
1-10	AA95-90026E	ASSY-PCB,A/V FI
1-11	AA61-40053A	STOPPER-PCB
1-12	AA64-10669A	KNOB-CONTROL
1-13	6002-000512	SCREW-TAPPINC
1-14	AA61-40015A	BOSS-CABINET
1-15	AA65-30105A	CLAMP-WIRE
1-16	AA91-60268A	ASSY-HOLDER,S
1-17	6002-000512	SCREW-TAPPINC
1-18	AA91-60269A	ASSY-HOLDER,S
1-19	AA60-10002A	SCREW-TAPPINC
1-20	6002-000522	SCREW-TAPPINC
2	AA03-10003L	CRT-COLOR
2-1	AA65-30019A	CLAMP-D,COIL
2-2	AA60-10050D	SCREW-ASSY
3	AA64-31039B	CABINET-BACK
3-1	AA42-10001V	ANT-ROD
3-2	6002-000514	SCREW-TAPPINC
3-3	ASSY-CHASSIS OPTION	
3-4	AA39-10001G	POWER-CORD

6. Exploded View & Parts List

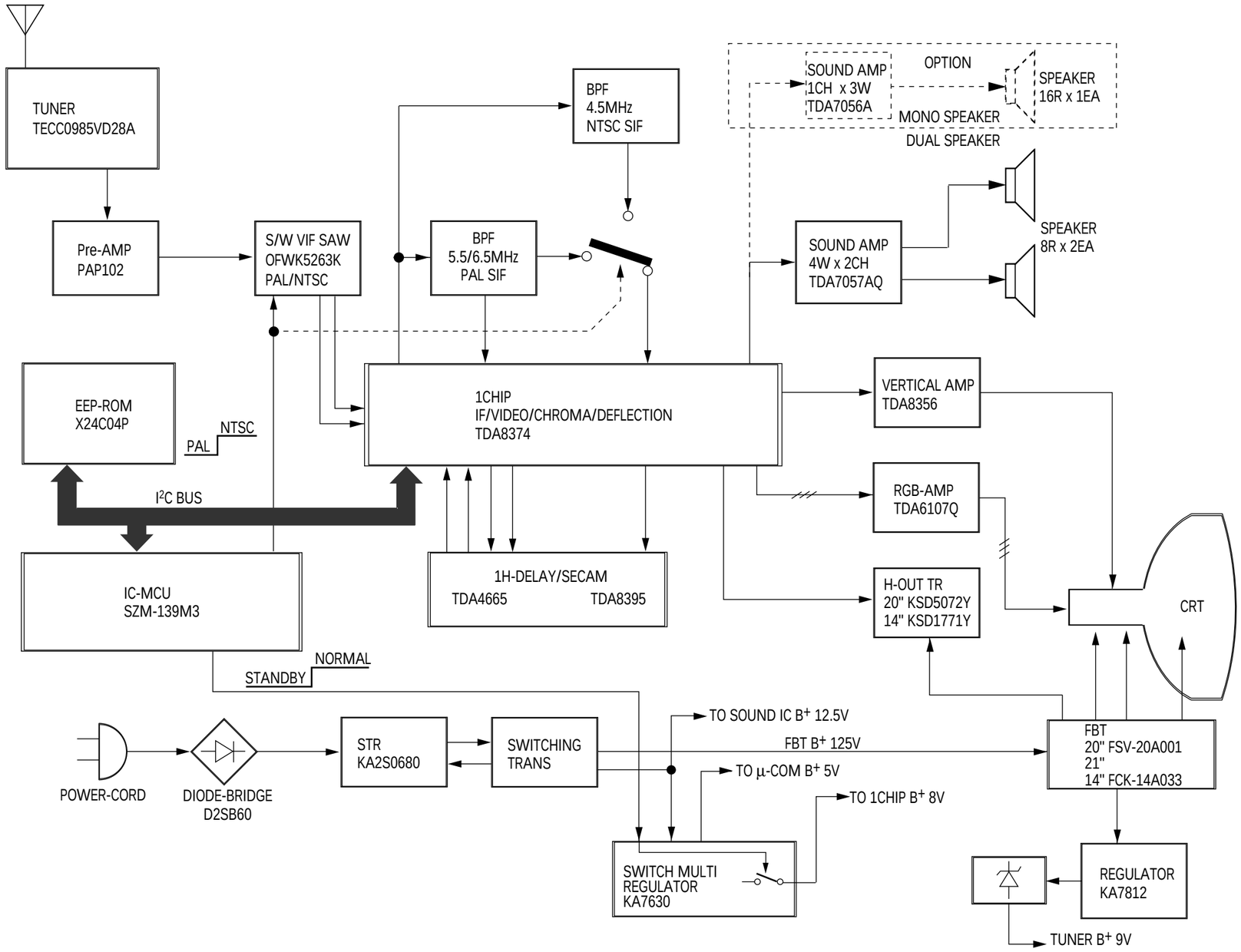
6-1 CK503ETR4S/NWT



No	Code No	Description
1	AA91-10354C	ASSY-CABINET,F
	AA64-31037A	CABINET-FRONT
1-1	AA63-50319A	GRILLE-WOOFER
1-2	AA64-60404B	INLAY-AV,HEAD
1-3	AA64-40431A	WINDOW-REMC
1-4	AA64-10670A	KNOB-POWER
1-5	AA61-60003T	SPRING-CS
1-6	AA63-30192J	COVER-CONTROI
1-7	AA64-40432A	INDICATOR-LED
1-8	AA64-70010B	BADGE-BRAND
1-9	AA60-10002A	SCREW-TAPPINC
1-10	AA95-90026E	ASSY-PCB,A/V FI
1-11	AA61-40053A	STOPPER-PCB
1-12	AA64-10669A	KNOB-CONTROL
1-13	6002-000512	SCREW-TAPPINC
1-14	AA61-40015A	BOSS-CABINET
1-15	AA65-30105A	CLAMP-WIRE
1-16	AA91-60268A	ASSY-HOLDER,S
1-17	6002-000512	SCREW-TAPPINC
1-18	AA91-60269A	ASSY-HOLDER,S
1-19	AA60-10002A	SCREW-TAPPINC
1-20	6002-000522	SCREW-TAPPINC
2	AA03-10003L	CRT-COLOR
2-1	AA65-30019A	CLAMP-D,COIL
2-2	AA60-10050D	SCREW-ASSY
3	AA64-31039B	CABINET-BACK
3-1	AA42-10001V	ANT-ROD
3-2	6002-000514	SCREW-TAPPINC
3-3	ASSY-CHASSIS OPTION	
3-4	AA39-10001G	POWER-CORD

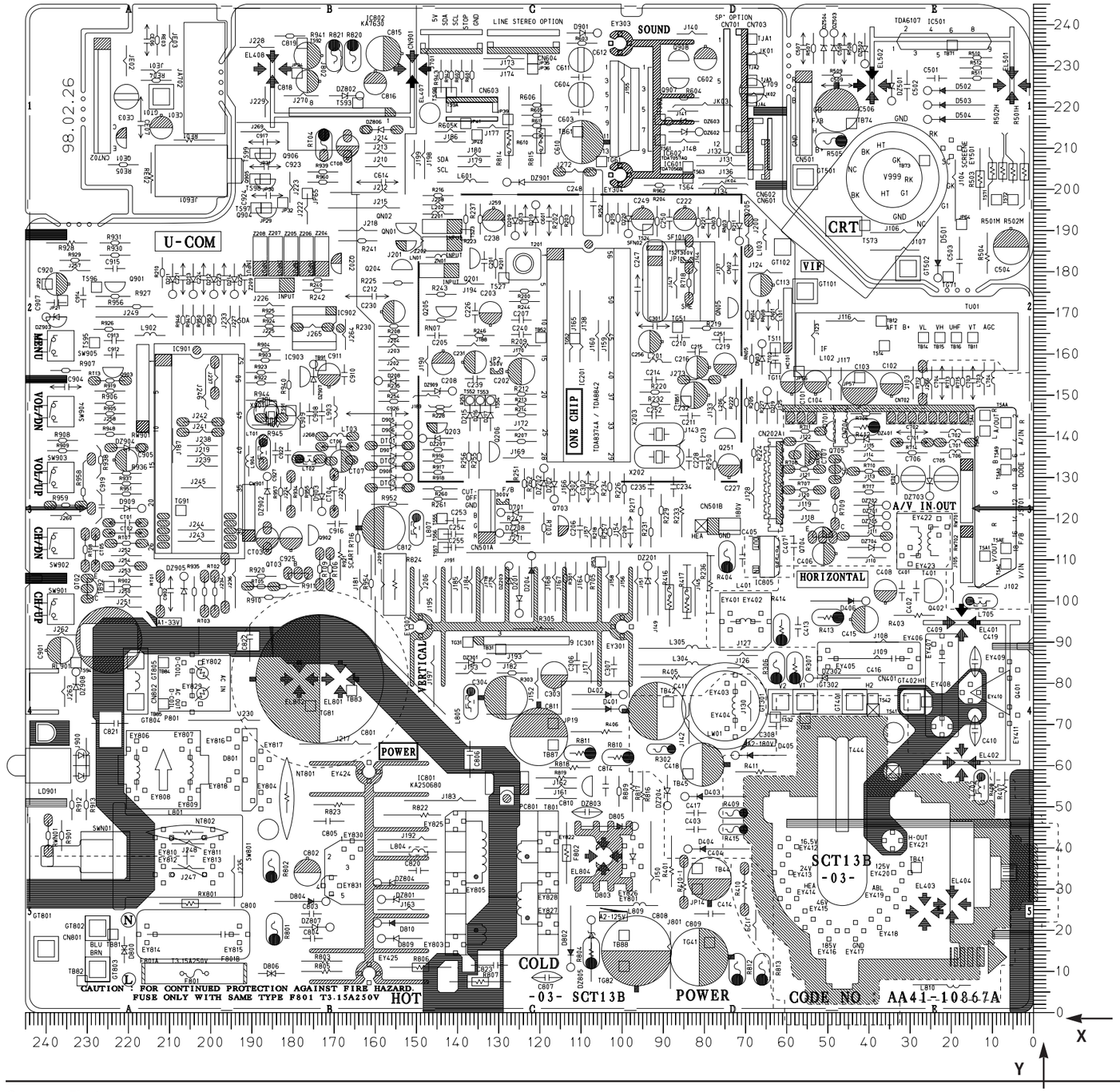
8. Block Diagram

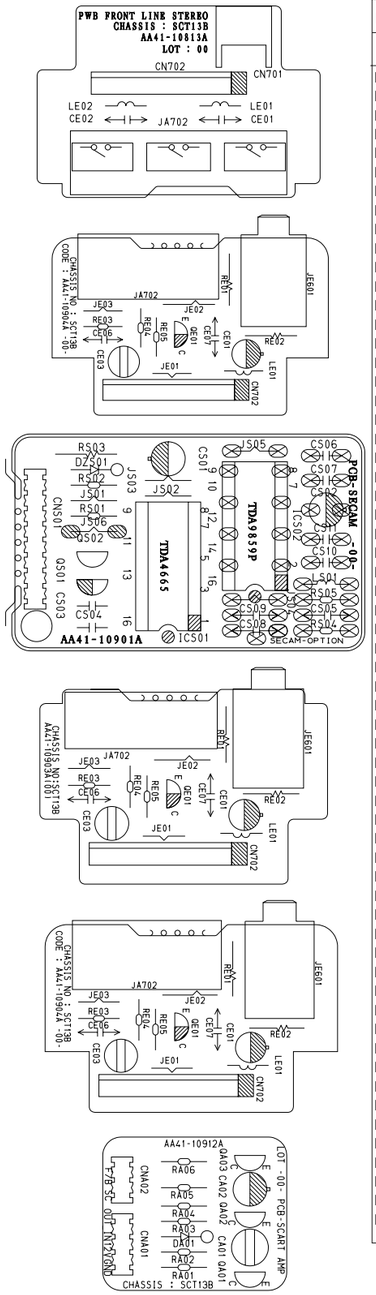
8-1 SCT13B



9. PCB Layout

9-1 PCB MAIN



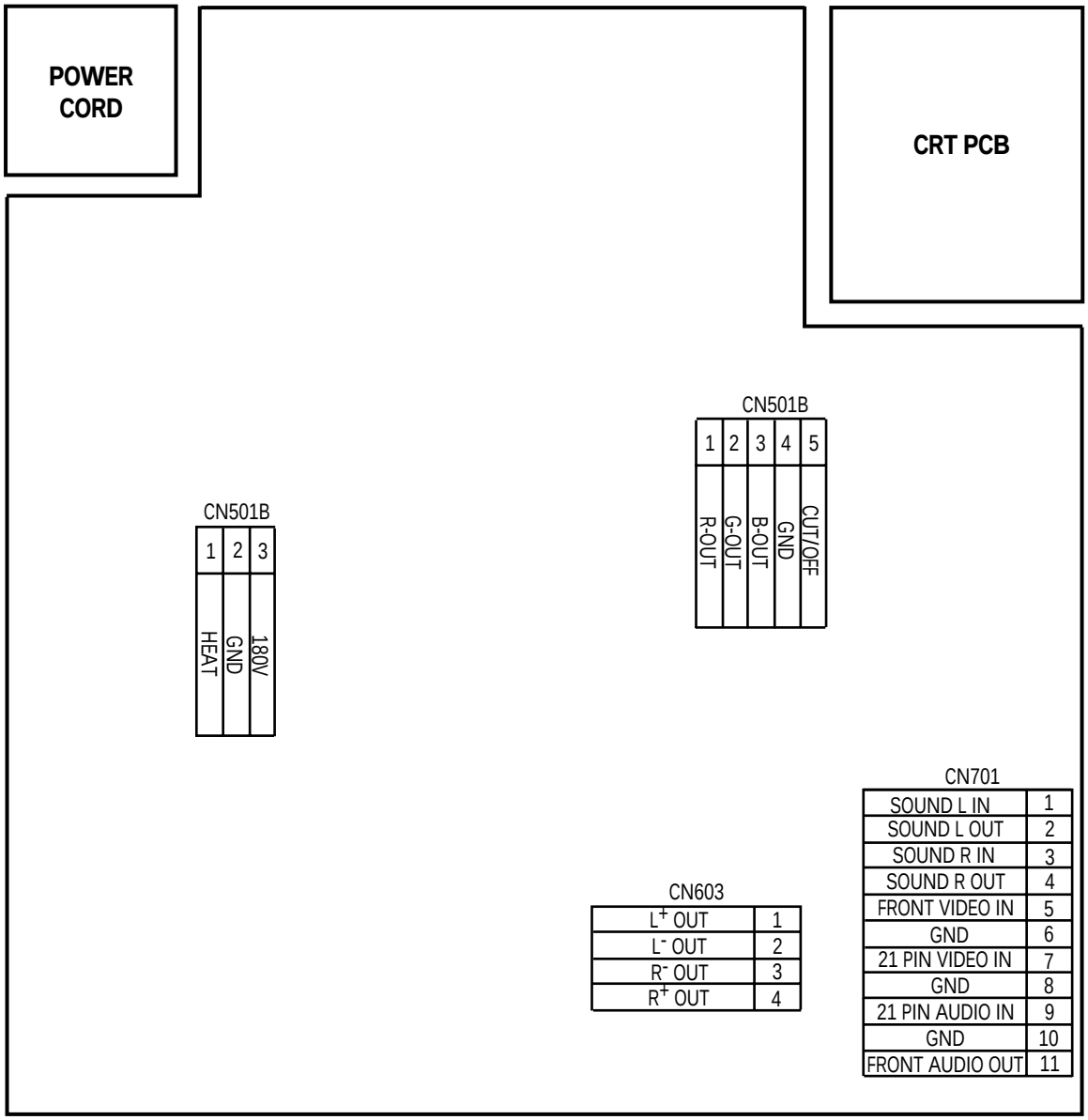


Loc. No.	X	Y
DIODE		
D201	125	97
D202	116	124
D204	122	111
D205	71	187
D208	159	153
D209	126	188
D210	121	196
D211	209	174
D212	199	174
D213	204	174
D214	194	174
D215	137	148
D216	134	148
D217	132	148
D219	64	151
D220	98	189
D401	99	73
D402	99	77
D403	84	52
D404	84	39
D405	72	62
D406	40	100
D501	23	178
D502	25	224
D503	25	220
D504	25	217
D701	129	121
D800	221	19
D801	188	51
D802	112	11
D803	104	38
D804	172	27
D805	97	45
D806	181	9
D809	158	18
D810	159	21
D901	106	238
D903	173	121
D905	152	142
D906	152	140
D907	152	135
D908	152	130
D909	216	122
DN03	66	162
DT01	152	137
DT02	152	132
DT03	152	127
DZ201	93	108
DZ202	119	132
DZ203	127	108
DZ204	89	50
DZ207	148	139
DZ208	129	116
DZ301	133	85
DZ302	54	81
DZ401	44	139
DZ501	34	221
DZ502	41	230
DZ503	48	238
DZ504	51	238
DZ602	81	214

Loc. No.	X	Y
DZ603	88	216
DZ701	35	120
DZ702	35	123
DZ703	25	125
DZ704	35	113
DZ705	35	118
DZ801	158	27
DZ802	163	222
DZ803	107	57
DZ804	159	31
DZ805	107	22
DZ806	162	214
DZ807	171	20
DZ901	128	201
DZ902	186	130
DZ903	240	169
DZ904	216	137
DZ905	206	106
DZ907	175	157
DZ908	232	82
DZ909	141	151
IC		
HC101	59	161
IC201	100	183
IC301	100	93
IC501	39	225
IC601	100	235
IC602	100	235
IC801	161	9
IC802	151	229
IC805	64	108
IC901	195	158
IC902	171	162
IC903	178	152
TRANSISTOR		
Q201	137	180
Q202	168	184
Q203	147	143
Q204	151	180
Q205	145	171
Q206	132	133
Q251	72	139
Q401	17	94
Q402	25	100
Q701	48	143
Q703	115	115
Q704	48	115
Q705	48	129
Q901	225	177
Q902	176	113
Q903	226	156
Q904	189	195
Q905	189	202
Q906	189	208
Q907	88	227
Q908	83	231
QE01	220	215
QN01	155	187
QN02	155	191

10. Wiring Diagram

10-1 SCT13B



MEMO

11. Schematic Diagrams

11-1 TTX Micom

MICOM OPTION

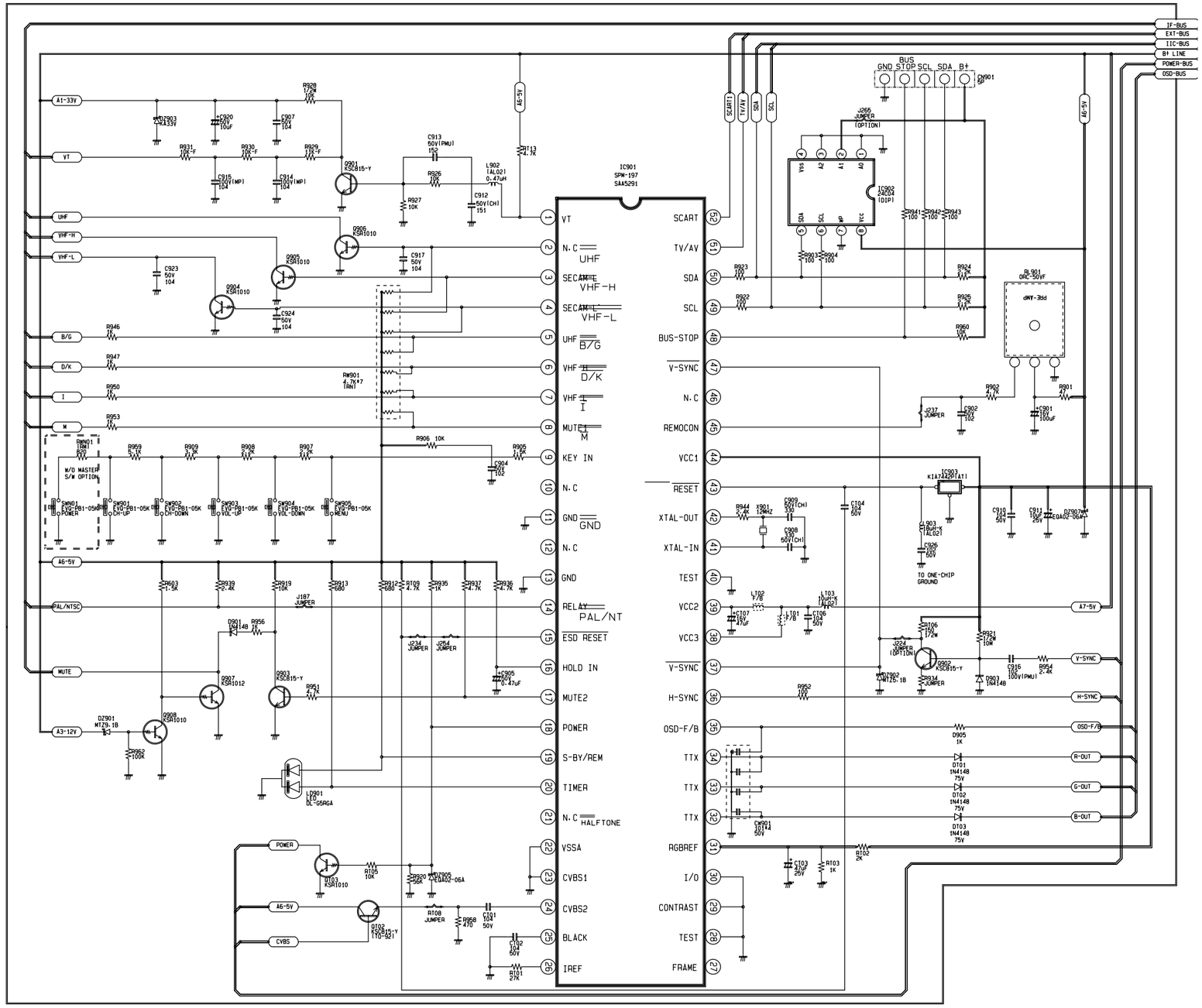
WICOM LOC	NON TTX u-COM CODE-NO	NON TTX u-COM SPEC	TTX u-COM CODE-NO	TTX u-COM SPEC
C908	2201-000193	C-C : 10PF 50V CH	2201-000980	C-C : 30PF 50V CH
C909	2201-000573	C-C : 47PF 50V CH	2201-000980	C-C : 30PF 50V CH
C919	2202-000796	C-AXIAL: 1NF 50V	DELETE	DELETE
C922	2305-000665	C-FILM: 104 63V	DELETE	DELETE
C925	2401-001495	C-AL: 47UF 16V	DELETE	DELETE
C101	DELETE	DELETE	2202-000109	C-AXIAL: 104 50V
C102	DELETE	DELETE	2202-000109	C-AXIAL: 104 50V
C103	DELETE	DELETE	2401-001495	C-AL: 47UF 16V
C104	DELETE	DELETE	2202-000109	C-AXIAL: 104 50V
C106	DELETE	DELETE	2202-000109	C-AXIAL: 104 50V
C107	DELETE	DELETE	2401-001495	C-AL: 47UF 16V
D905	0401-000005	DIODE 1N4148	2001-000429	R-CARBON: 1K 1/8W
D906	0401-000005	DIODE 1N4148	DELETE	DELETE
D907	0401-000005	DIODE 1N4148	DELETE	DELETE
D908	0401-000005	DIODE 1N4148	DELETE	DELETE
IC901	-	SZ4193	-	SPW-197
IC903	1203-000515	KIA7042P-AT	1203-000641	KIA7442P-AT
J111	DELETE	DELETE	3812-000219	JUMPER
J184	3812-000219	JUMPER	2001-000857	R-CARBON:560 1/8W
J185	3812-000219	JUMPER	2001-000857	R-CARBON:560 1/8W
J191	3812-000219	JUMPER	2001-000857	R-CARBON:560 1/8W
J224	DELETE	DELETE	3812-000219	JUMPER
J234	DELETE	DELETE	3812-000219	JUMPER
J237	DELETE	DELETE	3812-000219	JUMPER
J239	3812-000219	JUMPER	DELETE	DELETE
J245	3812-000219	JUMPER	DELETE	DELETE
J254	DELETE	DELETE	3812-000219	JUMPER
J264	3812-000219	JUMPER	DELETE	DELETE
J265	DELETE	DELETE	3812-000219	JUMPER
L101	DELETE	DELETE	2901-000297	FERRITE-BEAD
L102	DELETE	DELETE	2901-000297	FERRITE-BEAD
L103	DELETE	DELETE	2701-000114	COIL AL02 10uH
Q704	DELETE	DELETE	0501-000283	KSA539
Q102	DELETE	DELETE	0501-000389	KSC815-Y
Q103	DELETE	DELETE	0504-000123	KSR1010
R906	2001-000472	R-CARBON:2.7K 1/8W	2001-000290	R-CARBON:10K 1/8W
R907	2004-001291	R-CARBON:820 1/8W	2001-000449	R-CARBON:2.2K 1/8W
R908	2001-000214	R-CARBON:1.1K 1/8W	2001-000449	R-CARBON:2.2K 1/8W
R909	2001-000449	R-CARBON:2.2K 1/8W	2001-000591	R-CARBON:3.3K 1/8W
R910	2001-000290	R-CARBON:10K 1/8W	DELETE	DELETE
R916	2001-000281	R-CA:1/8T 68K-J	DELETE	DELETE
R917	2001-000281	R-CA:1/2T 10M-J	DELETE	DELETE
R918	2001-000281	R-CA:1/8T 510-J	DELETE	DELETE
R934	2001-000449	R-CARBON:2.2K 1/8W	3812-000212	JUMPER
R938	2001-000472	R-CARBON:2.7K 1/8W	DELETE	DELETE
R940	2001-001234	R-CARBON:75K 1/8W	DELETE	DELETE
R944	2004-001201	R-CARB:68K 1/8W	2001-000006	R-CARB:2.4K 1/8W
R945	2001-001062	R-CARB:10M 1/8W	DELETE	DELETE
R948	2001-000241	R-CARB:1.K 1/8W	DELETE	DELETE
R955	2001-000429	R-CARB:1K 1/8W	DELETE	DELETE
R957	2001-000832	R-CARB:510 1/8W	DELETE	DELETE
R958	DELETE	DELETE	2001-000793	R-CARB:470 1/8W
R959	DELETE	DELETE	2001-000800	R-CARB:15.1K 1/8W
RT01	DELETE	DELETE	2001-000563	R-CARB:27K 1/8W
RT02	DELETE	DELETE	2001-000577	R-CARB:2K 1/8W
R103	DELETE	DELETE	2001-000429	R-CARB:1K 1/8W
R104	DELETE	DELETE	2008-001062	R-FUSIBLE:39 2W
R105	DELETE	DELETE	2001-000290	R-CARB:10K 1/8W
R106	3812-000219	JUMPER	2001-000362	R-CARB:150 1/8W
R108	DELETE	DELETE	3812-000219	JUMPER
R109	DELETE	DELETE	2001-000734	R-CARB:4.7K 1/8W
RT13	DELETE	DELETE	2001-000734	R-CARB:4.7K 1/8W
D101	DELETE	DELETE	0401-00005	DIODE 1N4148
D102	DELETE	DELETE	0401-00005	DIODE 1N4148
D103	DELETE	DELETE	0401-00005	DIODE 1N4148
X901	2801-003224	32.76BKHz	2801-001476	12MHz
RB20	2008-000299	R-FUSIBLE 47 2W	2008-001062	R-FUSIBLE 2W 39
RB21	2008-000264	R-FUSIBLE 1 1W	DELETE	DELETE
JB02	DELETE	DELETE	3812-000219	JUMPER
DZ805	DELETE	DELETE	2003-000706	R-METAL 47K 2W AA
DZ806	DELETE	DELETE	0403-000295	DIODE MTZ5.1B
R406	2001-0001410	R-CARBON 43 1/2W	2001-001126	R-CARB 300 1/2W

SYSTEM OPTION

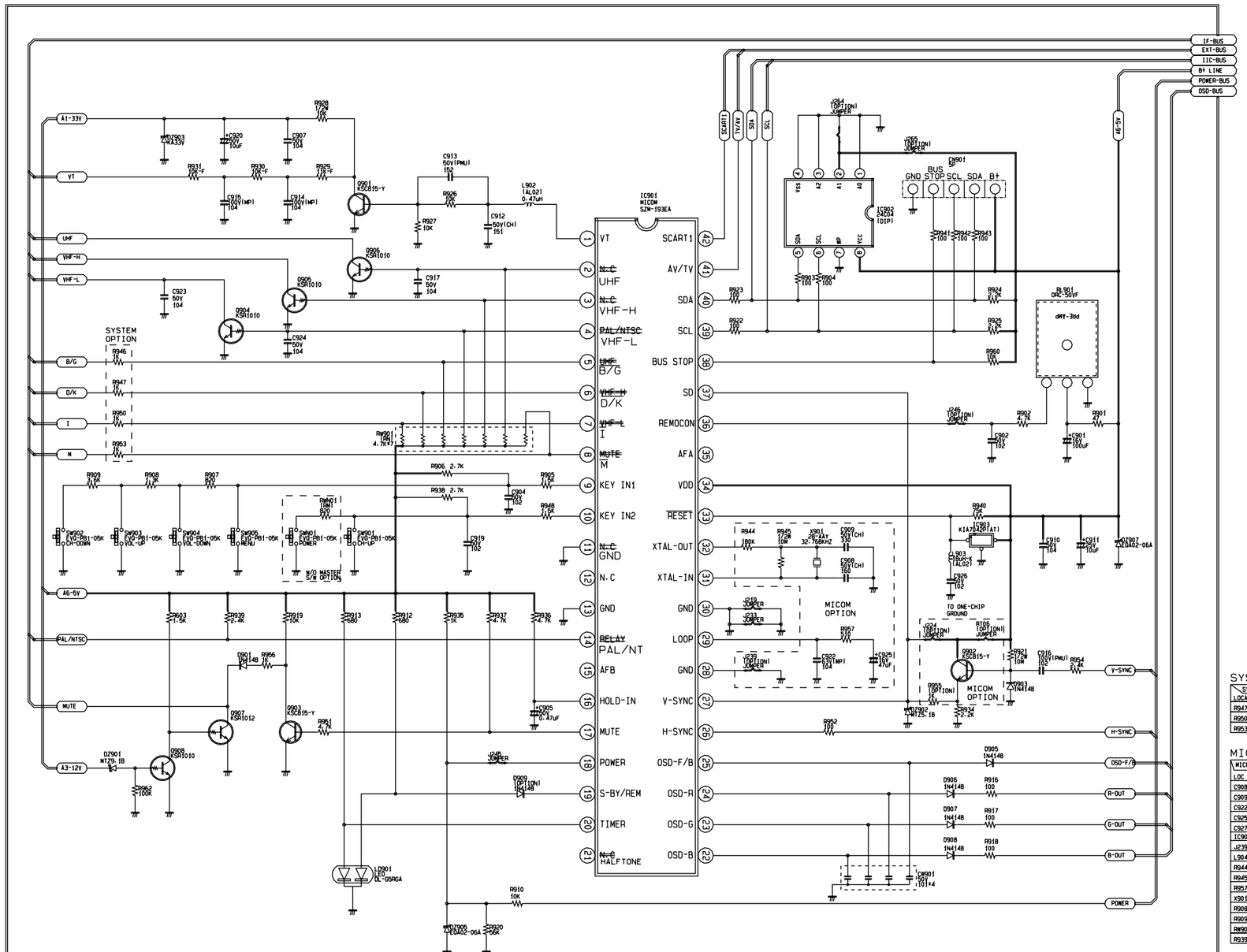
SYSTEM LOCA-NO	CS-SYSTEM	CK-SYSTEM	CB-SYSTEM
R947	R-CA:1/8T 1K-J	R-CA:1/8T 1K-J	DELETE
R950	R-CA:1/8T 1K-J	DELETE	DELETE
R953	R-CA:1/8T 1K-J	DELETE	DELETE

MASTER/TACT-S/W OPTION

S/W LOC	MASTER-S/W	TACT-S/W
RWND1	DELETE	R-CA:1/8T 820-J
SWND1	DELETE	SWITCH-TACT:15V 20mA


IF-BUS
EXT-BUS
IIC-BUS
B+ LINE
POWER-BUS
OSD-BUS
BUS
GND STOP SCL SDA B+
CN901
J265 JUMPER (OPTION)
IC901 SPW-197 SAA5291
IC902 24C04 (DIP)
IC903 KIA7442P(AT)
RL901 ORG-5DVF
A1-33V
A6-5V
A7-5V
A3-12V
VT
UHF
VHF-H
VHF-L
B/G
D/K
I
M
PAL/NTSC
MUTE
POWER
CVBS
SCART
TV/AV
SDA
SCL
BUS-STOP
V-SYNC
N.C
REMOCON
VCC1
RESET
XTAL-OUT
XTAL-IN
TEST
VCC2
VCC3
H-SYNC
OSD-F/B
TTX
RGBREF
I/O
CONTRAST
FRAME
VT
N.C
SECAM-H
SECAM-L
UHF
VHF-H
VHF-L
MUTE
KEY IN
GND
REL
ESD RESET
HOLD IN
MUTE2
POWER
S-BY/REM
TIMER
HALFTONE
VSSA
CVBS1
CVBS2
BLACK
IREF
PAL/NT
R928 1/2W 10K
R931 10K-F
R930 10K-F
R929 11K-F
C913 50V(PMU) 152
L902 (AL02) 0.47uH
R926 10K
R927 10K
C912 50V(CH) 151
C915 50V(WP) 104
C914 50V(WP) 104
C917 50V 104
C923 50V 104
C924 50V 104
C907 50V 104
C920 50V 10uF
R946 1K
R947 1K
R950 1K
R953 1K
RW901 4.7K*7 (ARY)
R906 10K
C904 50V 102
R959 5.1K
R909 3.3K
R908 2.2K
R907 2.2K
SW901 EVQ-PB1-05K POWER
SW902 EVQ-PB1-05K CH-DOWN
SW903 EVQ-PB1-05K VOL-UP
SW904 EVQ-PB1-05K VOL-DOWN
SW905 EVQ-PB1-05K MENU
W/O MASTER S/W OPTION
R603 1.5K
R939 2.4K
R919 10K
R913 680
R912 680
R709 2.7K
R935 1K
R937 4.7K
R936 4.7K
J187 JUMPER
D901 1N4148
R956 1K
J234 JUMPER
J254 JUMPER
C905 50V 0.47uF
R951 4.7K
R962 100K
DZ901 MTZ9.1B
LD901 LED DL-05RGA
R105 10K
R920 68K
DZ905 MTZ6.2EQA02-06A
R108 JUMPER
R958 470
C101 104 50V
C102 104 50V
RT01 27K
C107 16V 47uF
C106 104 50V
LT01 1.8/B
LT02 1.8/B
LT03 10uH-K (AL04)
R106 150 1/2W
R921 10K 1W
J224 JUMPER (OPTION)
DZ902 MTZ6.1B
R934 JUMPER
C916 102 100V(PMU)
R954 2.4K
R952 10K
R905 1K
DT01 1N4148 75V
DT02 1N4148 75V
DT03 1N4148 75V
CN901 104 50V
RT02 2K
C103 47uF 25V
RT03 1K
R944 2.4K
X901 12MHz
C909 50V(CH) 330
C908 50V(CH) 180
C104 104 50V
L903 (AL02)
C905 180 50V
TO ONE-CHIP GROUND
C910 104 50V
C911 10uF 25V
DZ907 MTZ6.2EQA02-06A
R941 100
R942 100
R943 100
R903 100
R904 100
R923 100
R924 2.4K
R922 100
R925 2.4K
R950 100
R902 4.7K
R901 10
C901 16V 100uF
C902 102
J237 JUMPER
R923 100
C903 104 50V
C904 104 50V
C905 104 50V
C906 104 50V
C907 104 50V
C908 104 50V
C909 104 50V
C910 104 50V
C911 104 50V
C912 104 50V
C913 104 50V
C914 104 50V
C915 104 50V

11-2 W/O TTX Micom



SYSTEM OPTION

SYSTEM / LOCAL NO	CS-SYSTEM	CK-SYSTEM	CB-SYSTEM
R947	R-CA:1/8T 1K-J	R-CA:1/8T 1K-J	DELETE
R950	R-CA:1/8T 1K-J	DELETE	DELETE
R953	R-CA:1/8T 1K-J	DELETE	DELETE

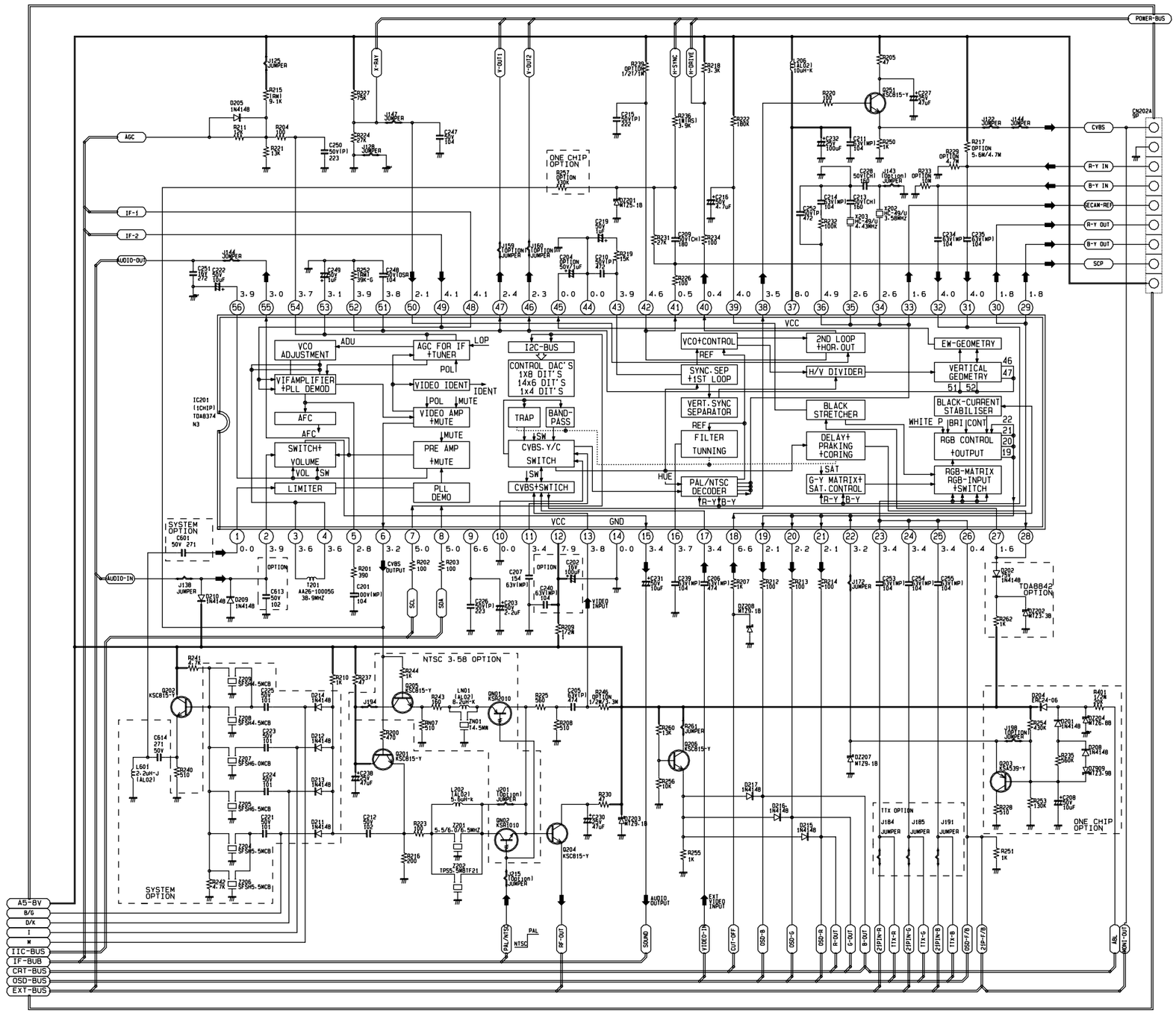
MICOM OPTION

MICOM / LOC	Z89331 OTP	Z89332 MASK	Z90211 OTP	Z90212 MASK
C908	C-CE:50V 6P(CH)	C-CE:50V 10P(CH)	C-CE:50V 10P(CH)	C-CE:50V 10P(CH)
C909	C-CE:50V 33P(CH)	C-CE:50V 47P(CH)	C-CE:50V 10P(CH)	C-CE:50V 10P(CH)
C922	DELETE	C-POLY:63V 104-J	C-CE:50V 47P(CH)	C-CE:50V 47P(CH)
C925	DELETE	C-AL:16V 47uF	DELETE	DELETE
C927	DELETE	DELETE	C-CE:50V 47P(CH)	C-CE:50V 47P(CH)
IC901	Z89331GPSCR1789	Z89332128PCS:MASK	Z90211GGPCS:OTP	Z90212GGPCS:MASK
J239	DELETE	JUMPER	DELETE	DELETE
L904	DELETE	DELETE	COIL-CHKE:13uH-K	COIL-CHKE:13uH-K
R944	R-CA:1/8T 180K-J	R-CA:1/8T 68K-J	JUMPER	JUMPER
R945	R-CA:1/2T 10M-J	R-CA:1/2T 10M-J	DELETE	DELETE
R957	DELETE	R-CA:1/8T 510-J	DELETE	DELETE
X901	X-TAL:32.768KHz	X-TAL:32.768KHz	X-TAL:6.0MHz	X-TAL:6.0MHz
R908	R-CA:1/8T 1.3K-J	R-CA:1/8T 1.1K-J	R-CA:1/8T 1.3K-J	R-CA:1/8T 1.1K-J
R909	R-CA:1/8T 3.6K-J	R-CA:1/8T2.2K-J	R-CA:1/8T 3.6K-J	R-CA:1/8T2.2K-J
RN901	R-NET:4.7K*7-BP	DELETE	R-NET:4.7K*7-BP	DELETE
R939	R-CA:1/8T 2.4K-J	DELETE	R-CA:1/8T 2.4K-J	DELETE

MASTER/TACT-S/W OPTION

S/W / LOC	MASTER-S/W	TACT-S/W
RN901	DELETE	R-CA:1/8T 820-J
SW901	DELETE	SWITCH-TACT:15V.20mA

11-3 ONE CHIP/CHROMA Block



TDA8374(N3)/TDA8842 OPTION

IC-CHIP LOC	TDA8374/N3	TDA8842
R235	R-CA:1/8T 560K-J	R-CA:1/8T 20K-J
R254	R-CA:1/8T 430K-J	DELETE
R253	R-CA:1/8T 130K-J	DELETE
R207	R-CA:1/8T 1K-J	R-CA:1/8T 15K-J
R217	R-CA:1/8T 5.6M-J	DELETE
C301	C-AXIAL: 50V/102	C-AXIAL: 16V/222
C302	C-AXIAL: 50V/102	C-AXIAL: 16V/222
R301	R-CA:1/8T 3.6K-F	R-CA:1/8T 3.0K-F
C234	C-POLY: 63V/104P	DELETE
C235	C-POLY: 63V/104P	DELETE
R222	R-CA:1/8T 180K-J	DELETE
R228	R-CA:1/8T 510-J	DELETE
DZ207	DIODE-ZENER: MTZ9.1B	DELETE
Q203	TRANSISTOR: KSA539-Y	DELETE
J189	DELETE	JUMPER
C216	C-AL: 50V/4.7uF	C-POLY: 63V/224P
C239	C-POLY: 63V/104P	C-POLY: 63V/224P
C256	DELETE	C-AL: 50V/1uF
X203	X-TAL: PHILIPS4.43MHZ	X-TAL: KONY4.43MHZ
C228	C-CERAMIC: 50V/160P(CH)	C-CERAMIC: 50V/101P(CH)
R257	DELETE	R-CA:1/8T 330K-J
C215	C-POLY: 50V/222P	C-POLY: 50V/103P
D215	DIODE-SWITCHING: 1N414B	DELETE
D216	DIODE-SWITCHING: 1N414B	DELETE
D217	DIODE-SWITCHING: 1N414B	DELETE
R255	R-CA:1/8T 1K-J	DELETE
R256	R-CA:1/8T 10K-J	R-CA:1/8T 330K-J
R260	R-CA:1/8T 13K-J	DELETE
Q206	TRANSISTOR: KSC815-Y	DELETE
C252	C-POLY: 50V/472P	C-POLY: 50V/102P
C214	C-POLY: 50V/104P	C-POLY: 63V/473P
R232	R-CA:1/8T 100K-J	R-CA:1/8T 150K-J
C601	C-AXIAL: 50V/271	C-AXIAL: 50V/271P
C614	C-AXIAL: 50V/101P	C-AXIAL: 50V/271P
-	-	-
DZ202	DELETE	DIODE-ZENER: MTZ3.6B
D202	DELETE	DIODE-SWITCHING: 1N414B
R262	DELETE	R-CA:1/8T 1K-J
DZ204	DELETE	DIODE-ZENER: MTZ6.8B
J172	JUMPER	R-CA:1/8T 6.8K-J
C208	C-AL: 50V/10uF	C-AL: 50V/4.7uF
DZ909	DELETE	DIODE-ZENER:
D208	DELETE	DIODE-SWITCHING: 1N414B
R411	R-METAL: 1/2T 91K-F	R-METAL: 1/2T 110K-F
R707	R-CA:1/8T 470-J	R-CA:1/8T 47-J
R709	R-CA:1/8T 150-J	JUMPER
R710	R-CA:1/8T 150-J	R-CA:1/8T 510-J
Q704	TRANSISTOR: KSA539-Y	DELETE
IC201	CHROMA-IC:	CHROMA-IC:
R401	R-CA:1/2T 20K-J	JUMPER
D201	DIODE-SWITCHING: 1N414B	JUMPER
D204	DIODE: ERC34-06	DELETE

INCH-OPTION

INCH LOC	21-INCH	20-INCH	15-INCH	14-INCH
R253	R-CA:1/8T 130K-J	R-CA:1/8T 120K-J	R-CA:1/8T 110K-J	R-CA:1/8T 110K-J
RX04	RM 1/2T 3.9K-K			RM 1/2T 4.3K-F
RX06	RM 1/2T 9.1K-F			RM 1/2T 12K-F

SYSTEM OPTION

SYSTEM LOCA-NO	CS-SYSTEM	CK-SYSTEM	CB-SYSTEM
L601	INDUCTOR-AXIAL:2.2uH	COIL-CHOKE:5.6uH-K	COIL-CHOKE:5.6uH-K
Z209	FILTER-CE:SFE4.5MCB	DELETE	DELETE
Z208	FILTER-CE:SFSH4.5MCB	DELETE	DELETE
C225	C-CE:50V 101(AXIAL)	DELETE	DELETE
D214	DIODE-S/M:1N414B	DELETE	DELETE
Z207	FILTER-CE:SFSH6.0MCB	DELETE	DELETE
C223	C-CE:50V 101(AXIAL)	DELETE	DELETE
D212	DIODE-S/M:1N414B	DELETE	DELETE
Z205	FILTER-CE:SFSH6.5MCB	FILTER-CE:SFSH6.5MCB	DELETE
C224	C-CE:50V 101(AXIAL)	C-CE:50V 101(AXIAL)	DELETE
D213	DIODE-S/M:1N414B	DIODE-S/M:1N414B	DELETE
Z206	FILTER-CE:SFSH5.5MCB	FILTER-CE:SFSH5.5MCB	DELETE
J194	JUMPER	DELETE	DELETE
R244	R-CA:1/8T 1K-J	DELETE	DELETE
Q205	TR-SMALL SIGNAL:KSC815	DELETE	DELETE
RN07	R-CA:1/8T 510-J	DELETE	DELETE
R243	R-CA:1/8T 100-J	DELETE	DELETE
LN01	COIL-CHOKE:5.6uH-K	DELETE	DELETE
ZN01	FILTER-CE:TPS4.5MM	DELETE	DELETE
QN01	TR-DIGITAL:KSR2010	DELETE	DELETE
L202	COIL-CHOKE:5.6uH-K	COIL-CHOKE:5.6uH-K	COIL-CHOKE:8.2uH-K
Z201	FILTER-CE:302M	FILTER-CE:TPS6.5MCB	DELETE
Z202	FILTER-CE:TPS5.5MB	FILTER-CE:TPS5.5MB	FILTER-CE:TPS5.5MM
J201	DELETE	JUMPER	JUMPER
QN02	TR-DIGITAL:KSR1010	DELETE	DELETE
J215	JUMPER	DELETE	DELETE
C601	C-AXIAL:25V 271	C-AXIAL:25V 223	C-AXIAL:25V 223
C614	C-AXIAL 50V 271	C-AXIAL:25C 101	C-AXIAL:25C 101

AREA OPTION

AREA LOC.NO	CE	EXTRA
C202	DELETE	C-AL 16V 100uF
C240	DELETE	C-POLY 63V 104
C613	C-CERAMIC AXIAL 50V 331	C-CERAMIC AXIAL 50V 102
J200	JUMPER	DELETE
J272	JUMPER	DELETE
J273	JUMPER	DELETE
R717	R-CARBON 1/8W 15K	R-CARBON 1/8W 5.6K

11-4 IF/Sound . EXT-A/V Block

AUDIO-AMP OPTION

SOUND-AMP LOCA-NO	3.5[W] * 2-CH[TDA7057AQ]	2.7[W] * 1-CH[TDA7056B]
C611	C-FILM-PEF:50V 472-J	DELETE
C612	C-AL:50V/0.47uF	DELETE
CN601	DELETE	CONNECTOR-HEADER:BOX-3P
CN602	CONNECTOR-HEADER:BOX-4P	DELETE
CN701	CONNECTOR-HEADER:AUTO-12P	DELETE
CN703	DELETE	CONNECTOR-HEADER:AUTO-9P
D803	DIODE-RECTIFIER:FML-G02S	DELETE
D805	DELETE	DIODE-RECTIFIER:RGP-15G
IC601	DELETE	ASSY-H/S:SOUND-TDA7056B
IC602	ASSY-H/S:SOUND-TDA7057AQ	DELETE
J131	JUMPER	DELETE
J134	JUMPER	DELETE
J177	JUMPER	DELETE
R605	R-CA:1/8T 22K-J	DELETE
R606	R-CA:1/8T 3.6K-J	DELETE
R814	R-FUS:2T 0.47-J	R-FUS:2T 2.4-J
R815	R-FUS:2T 0.47-J	R-FUS:2T 2.4-J

MONO/21PIN/LINE STEREO OPTION

SYSTEM LOCA-NO	MONO RCA-4P	LINE STEREO RCA-6P	21-PIN SCART
C701	DELETE	C-CE:50V 101[AXIAL]	DELETE
C705	C-AL:50V 0.47uF[NP]	DELETE	C-AL:50V 0.47uF[NP]
C706	C-AL:50V 0.47uF[NP]	DELETE	C-AL:50V 0.47uF[NP]
C707	DELETE	C-AL:25V 47uF	DELETE
CN604	DELETE	POST-HEADER:6P	DELETE
CN702	DELETE	ASSY-LINE STEREO	DELETE
J195	JUMPER	DELETE	JUMPER
J177	JUMPER	DELETE	JUMPER
J186	JUMPER	DELETE	JUMPER
J111	DELETE	JUMPER	DELETE
JS701	JACK-PIN:RCA-4P	JACK-PIN:RCA-6P	JACK-RCA*21P-SCART
L701	DELETE	COIL-CHOKE:4.7uH-K	DELETE
L706	COIL-CHOKE:4.7uH-K	DELETE	COIL-CHOKE:4.7uH-K
Q704	DELETE	TRANSISTOR:KSA539-Y	DELETE
Q705	DELETE	TRANSISTOR:KSC815-Y	DELETE
R601	DELETE	R-CA:1/8T 100-J	DELETE
R712	DELETE	R-CA:1/8T 5.6K-J	DELETE
R713	DELETE	DELETE	R-CA:1/8T 5.6K-J
L704	DELETE	COIL-CHOKE:4.7uH-K	COIL-CHOKE:4.7uH-K
C704	DELETE	C-CE:50V 101[AXIAL]	C-CE:50V 101[AXIAL]
R602	DELETE	R-CA:1/8T 100-J	DELETE
R701	R-CA:1/8T 100-J	DELETE	R-CA:1/8T 100-J
R706	R-CA:1/8T 1.2K-J	DELETE	R-CA:1/8T 1.2K-J
R707	DELETE	R-CA:1/8T 470-J	DELETE
R708	DELETE	R-CS:1/8T 47K-J	DELETE
R709	DELETE	R-CA:1/8T 150-J	DELETE
R710	DELETE	R-CA:1/8T 150-J	DELETE
R711	DELETE	R-CA:1/8T 18K-J	DELETE
R712	DELETE	R-CA:1/8T 5.6K-J	DELETE
J173	DELETE	JUMPER	DELETE
J174	DELETE	JUMPER	DELETE
ASSY			
RM701	DELETE	DELETE	R-NET:33K/24K/75*3-6P
DZ701	DELETE	DELETE	DIODE-ZENER:MTZ9.1B
DZ702	DELETE	DELETE	DIODE-ZENER:MTZ9.1B
DZ703	DELETE	DELETE	DIODE-ZENER:MTZ9.1B
Q703	DELETE	DELETE	TRANSISTOR:KSA539-Y
R703	DELETE	DELETE	R-CA:1/8T 1K-J
D701	DELETE	DELETE	DIODE-S/W:1N4148
R705	DELETE	DELETE	R-CA 1/8T 330-J
DZ705	DELETE	DELETE	DIODE-ZENER:MTZ9.1B
R716	R-CA:1/8T 24K-J	R-CA:1/8T 24K-J	DELETE

LINE STEREO FRONT-A/V OPTION

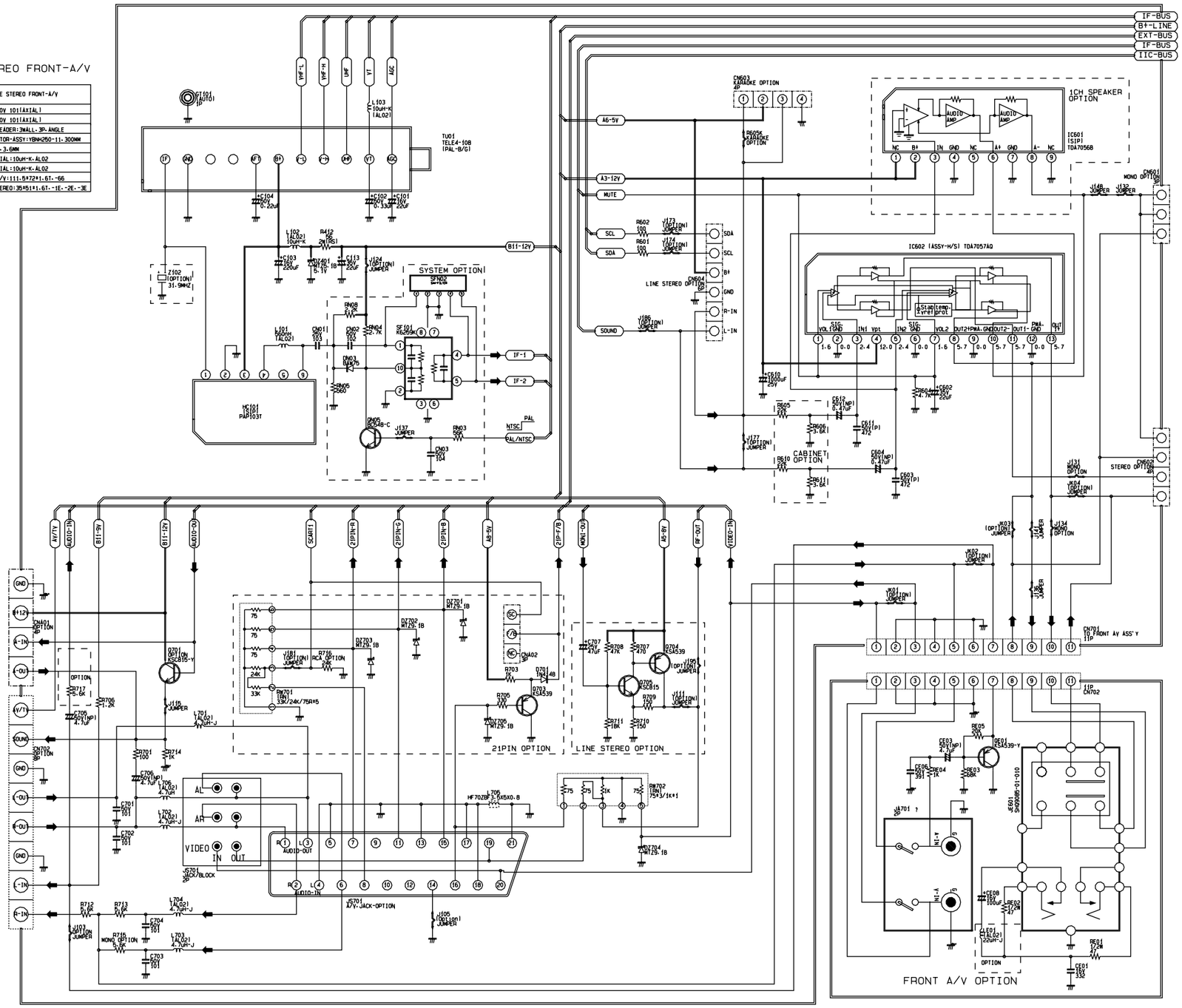
F-A/V LOC	LINE STEREO FRONT-A/V
CE01	C-CERAMIC:50V 101[AXIAL]
CE02	C-CERAMIC:50V 101[AXIAL]
CN701	CONNECTOR-HEADER:3WALL-3P-ANGLE
CN702	LEAD CONNECTOR-ASSY:YBMH250-11-300MM
JA701	JACK-RCA:3P-3.6MM
LE01	INDUCTOR-AXIAL:10UH-K.AL02
LE02	INDUCTOR-AXIAL:10UH-K.AL02
PCB	PCB FRONT-A/V:111.5*72*1.6T-66
	PCB-LINE STEREO:35*51*1.6T-1E-2E-3E

SYSTEM OPTION

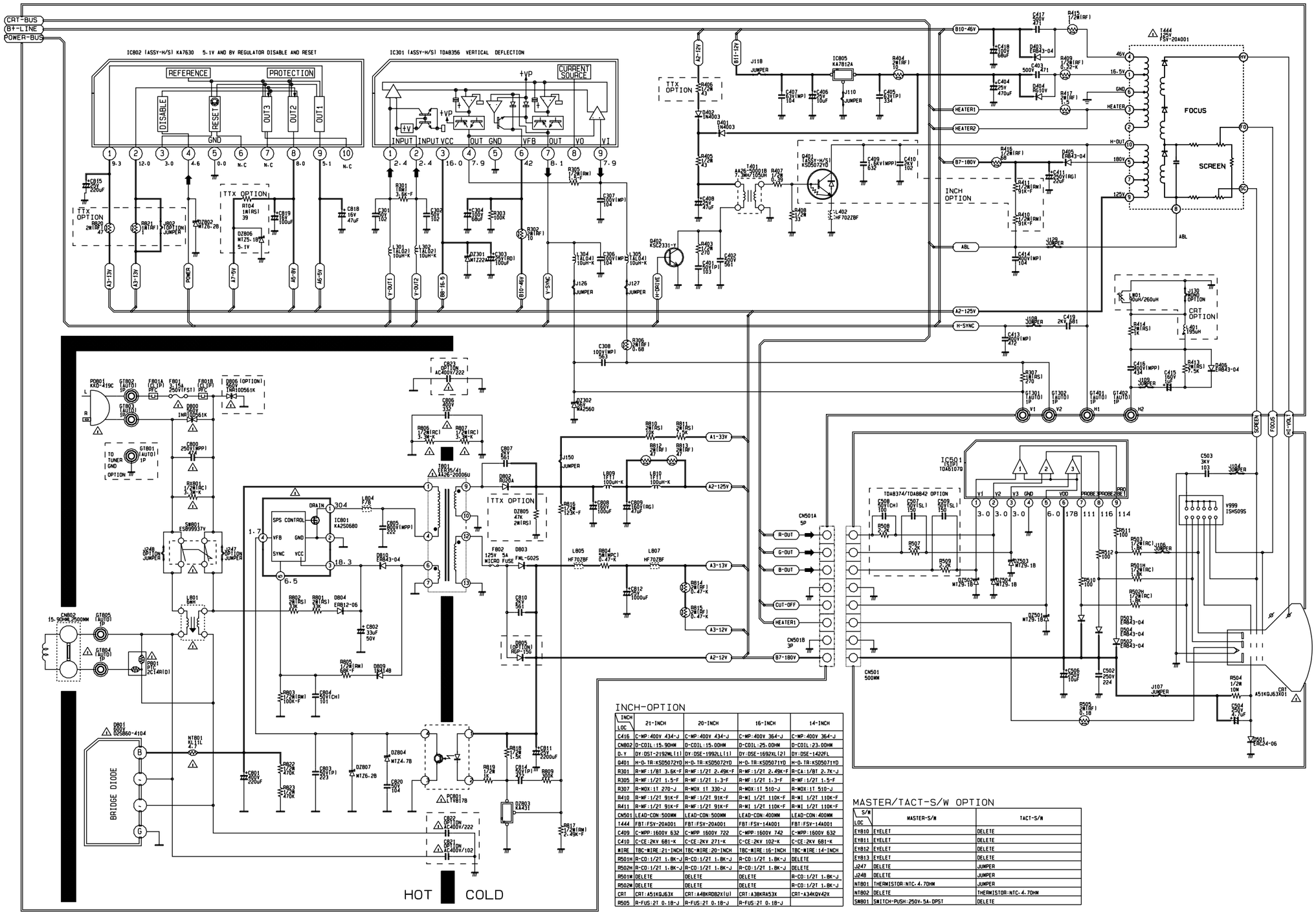
SYSTEM LOCA-NO	CS-SYSTEM	CK-SYSTEM	CB-SYSTEM
J124	JUMPER	DELETE	DELETE
RN08	R-CA:1/8T 2.2K-J	DELETE	DELETE
RN04	R-CA:1/8T 2.7K-J	DELETE	DELETE
CN02	C-CE 50V 102[AXIAL]	JUMPER	JUMPER
DN03	DIODE-S/W:BAW75	DELETE	DELETE
RN05	R-CA:1/8T 2.2K-J	DELETE	DELETE
QN05	TR-SMALL SIGNAL:BC548	DELETE	DELETE
J137	JUMPER	DELETE	DELETE
CN03	C-CE:50V 104[AXIAL]	DELETE	DELETE
RN03	R-CA:1/8T 56K-J	DELETE	DELETE
SF101	FILTER-SAW AV:K6259K	DELETE	DELETE
SFN02	DELETE	FILTER-SAW AV:K2971M	FILTER-SAW A/V:G1963M

FRONT-A/V DELETE OPTION

LOC	FRONT-A/V	DELETE
JK01	DELETE	JUMPER
C709	DELETE	C-ELEC 50V 4.7uF NP
JK03	DELETE	JUMPER
JK04	DELETE	JUMPER
J141	JUMPER	DELETE
J136	JUMPER	DELETE
J134	JUMPER	DELETE
CN701	POST-HEADER:[1P.~8P.-73.-38	DELETE
	POST-HEADER:9P.-73.-38	DELETE



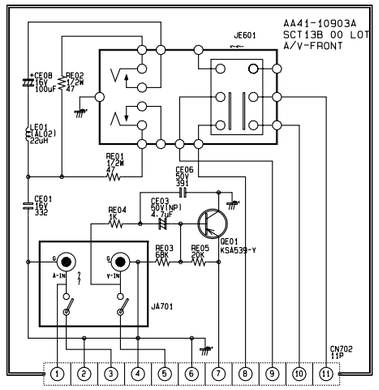
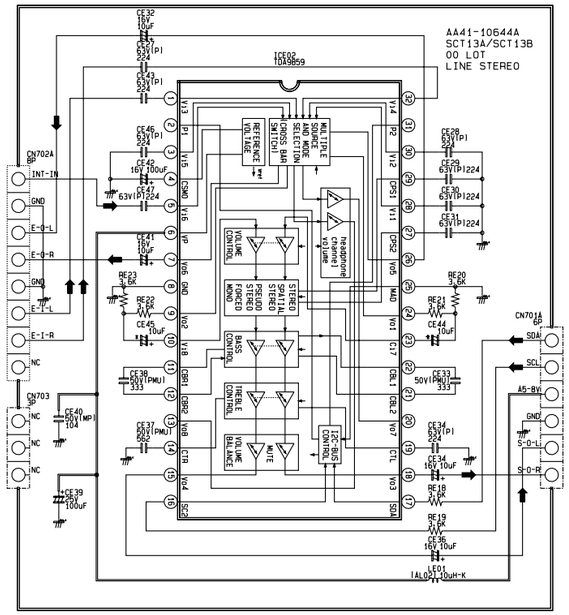
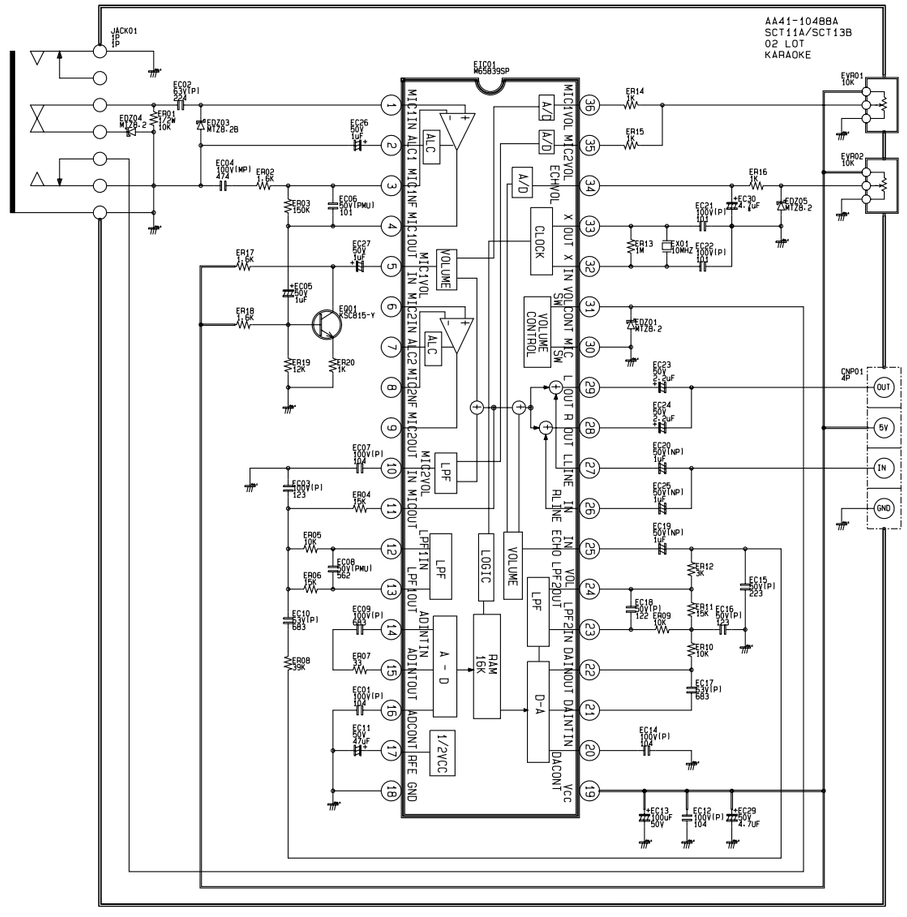
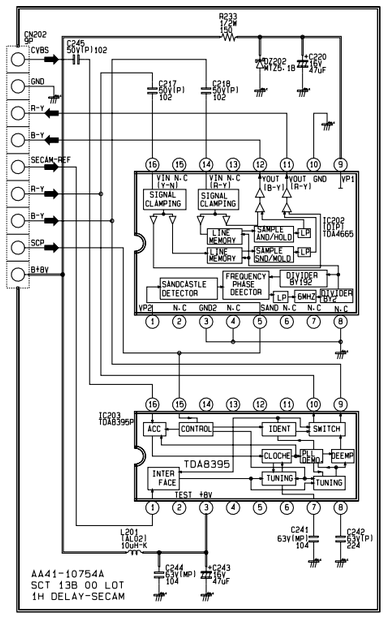
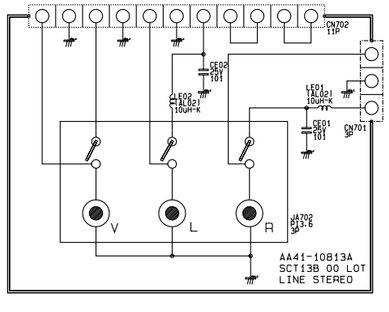
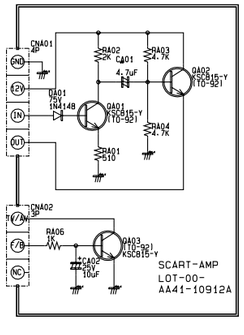
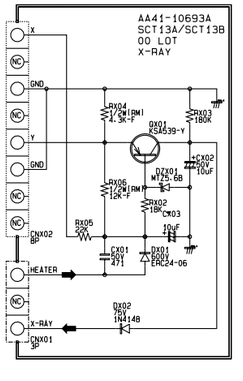
11-5 Power /Vertical /Horizontal /CRT



INCH-OPTION

INCH / LOC	21-INCH	20-INCH	16-INCH	14-INCH
C416	C-MP:400V 434-J	C-MP:400V 434-J	C-MP:400V 364-J	C-MP:400V 364-J
CN802	D-COIL:15.90HM	D-COIL:15.00HM	D-COIL:25.00HM	D-COIL:23.00HM
D.Y	DY:DS1-2192ML(1)	DY:DSE-1992LL(1)	DY:DSE-1692XL(2)	DY:DSE-1422FL
Q401	H-D.TR:KSD5072YD	H-D.TR:KSD5072YD	H-D.TR:KSD5071YD	H-D.TR:KSD5071YD
R301	R-MF:1/8T 3.6K-F	R-MF:1/2T 2.49K-F	R-MF:1/2T 2.49K-F	R-CA:1/8T 2.7K-J
R305	R-MF:1/2T 1.5-F	R-MF:1/2T 1.3-F	R-MF:1/2T 1.3-F	R-MF:1/2T 1.5-F
R307	R-MOX:1T 270-J	R-MOX 1T 330-J	R-MOX:1T 510-J	R-MOX:1T 510-J
R410	R-MF:1/2T 91K-F	R-MF:1/2T 91K-F	R-MI 1/2T 110K-F	R-MI 1/2T 110K-F
R411	R-MF:1/2T 91K-F	R-MF:1/2T 91K-F	R-MI 1/2T 110K-F	R-MI 1/2T 110K-F
CN501	LEAD-CON:500MM	LEAD-CON:500MM	LEAD-CON:400MM	LEAD-CON:400MM
T444	FBT:FSY-20A001	FBT:FSY-20A001	FBT:FSY-14A001	FBT:FSY-14A001
C409	C-MPP:1600V 632	C-MPP 1600V 722	C-MPP:1600V 742	C-MPP:1600V 632
C410	C-CE:2KV 681-K	C-CE:2KV 271-K	C-CE:2KV 102-K	C-CE:2KV 681-K
WIRE	TBC-WIRE:21-INCH	TBC-WIRE:20-INCH	TBC-WIRE:16-INCH	TBC-WIRE:14-INCH
R501H	R-CO:1/2T 1.8K-J	R-CO:1/2T 1.8K-J	R-CO:1/2T 1.8K-J	DELETE
R502H	R-CO:1/2T 1.8K-J	R-CO:1/2T 1.8K-J	R-CO:1/2T 1.8K-J	DELETE
R501M	DELETE	DELETE	DELETE	R-CO:1/2T 1.8K-J
R502M	DELETE	DELETE	DELETE	R-CO:1/2T 1.8K-J
CRT	CRT:A51KQJ63X	CRT:A48KRD82X(U)	CRT:A38KRA53X	CRT-A34KQV42X
R505	R-FUS:2T 0.18-J	R-FUS:2T 0.18-J	R-FUS:2T 0.18-J	

MASTER/TACT-S/W OPTION

S/W / LOC	MASTER-S/W	TACT-S/W
EYB10	EYELET	DELETE
EYB11	EYELET	DELETE
EYB12	EYELET	DELETE
EYB13	EYELET	DELETE
J247	DELETE	JUMPER
J248	DELETE	JUMPER
NTB01	THERMISTOR:NTC.4.70HM	JUMPER
NTB02	DELETE	THERMISTOR:NTC.4.70HM
SWB01	SWITCH-PUSH:250V.5A.DPST	DELETE

11-6 A/V Front, SUB